APR. 24 1959

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

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Let your Dowell representative tell you about Acid Petrofrac and its application to your well problem. For prompt service or detailed information, call the Dowell station or office nearest you. Or write Dowell, Tulsa 1, Oklahoma.

Services for the oil industry — DOWELL

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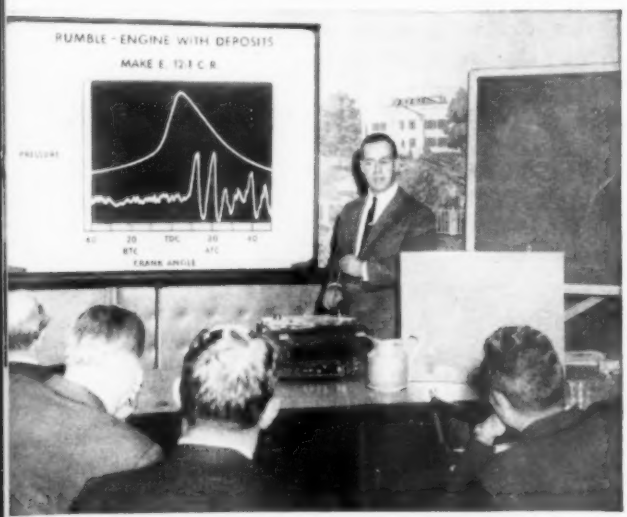
1. Oil companies frequently make use of Ethyl's experience in designing and constructing test equipment and instrumentation. Here, Desmond consults on construction progress of an oil company's new controlled-weather dynamometer room.

2. Comparing results of oil company research and Ethyl research is another liaison activity. Here, Desmond discusses data from a test program—for evaluation in light of similar work done by Ethyl in Detroit.



3. Technical meetings with oil company research people provide opportunities for an exchange of ideas and information. Ed arranged this meeting for a discussion of deposit effects and their relationship to rumble.

This is Ethyl's Ed Desmond

Ed Desmond is an Ethyl Research Representative—one of the experienced engineers who serve as liaison between Ethyl's Research Laboratories and the petroleum industry.

Ed knows fuels and lubricants, and he knows engines. He started in Ethyl Research 20 years ago, after graduating from Penn State's School of Engineering. And his broad technical experience—a "must" for all of Ethyl's Research Representatives—ranges from diesel fuel tests in Navy submarines to aviation fuel tests in Air Force planes.

The job of Ed and his counterparts: To bring to oil company people the results of our research programs, plus information on new developments in the automotive industry; and also, to bring *back* to Ethyl's Research Laboratories fuel-engine problems of the petroleum industry.

Ethyl's Research Representatives are a communicating link between the petroleum industry and Ethyl . . . typifying our belief that service is just as important as product.

ETHYL CORPORATION
New York 17, N. Y.

4. Setting up cooperative research programs between customers and Ethyl is another phase of Ed's job. Here, he's checking with an Ethyl laboratory supervisor on the progress of a current program.

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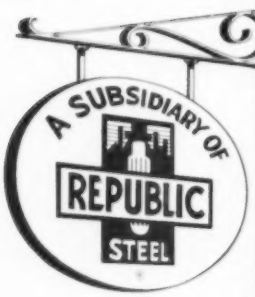

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INSIDE *Slant*

COST TRIMMING DID PAY

Did the petroleum industry realize any benefits from last year's cost-cutting efforts?

Definitely so.

A case history of such economies can be taken from the annual report of Humble Oil & Refining Co., one of the nation's largest domestic oil producers.

The average cost of wells drilled by Humble was $157,000, down 8% from 1957.

And greater benefits were derived from the emphasis on drilling and completing wells at minimum cost.

Among the factors that went into trimming these costs were: reduction of hole size, casing size, length of surface and protective strings, slim holes, and tubingless completions, as well as reduced perforation density, minimum-cost fracturing, permanent-type completions, and improved drilling fluids and practices.

Compared with 1957, the savings as a result of these cost-saving factors was 15%.

Humble also lowered its production costs. The percentage here was 8%, effected by more efficient practices and the use of improved equipment.

LeRoy Menzing
EDITOR

PERFORMANCE PROMOTES PREFERENCE

The Cameron "Flex-Seal" Valve is a good example of performance promoting preference. "Flex-Seal" sales over the years have outnumbered the combined total of competitive valves.

The reasons for this record are obvious to the many drillers all over the world who have tried ordinary valves in tough mud line service and then switched to "Flex-Seals." High pressure pulsations of abrasive-laden mud will wreck ordinary valves in short order. But "Flex-Seals" with resilient Hycar synthetic rubber seats take this punishment for long periods without repair. As wear occurs, an extra large reserve of rubber moves into place to compensate. When finally necessary, simple in-line repairs are quick and complete with no delicate adjustments or special tools required.

Make a comparison with any valve offered today – we believe you too will COUNT ON CAMERON "Flex-Seals" for safety, convenience, and obvious economy.

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DEPT/Opinions

Views that Make News . . .

"Too many people seem to think that the recent import regulation will cure all of the industry's economic ills. But I sincerely suggest that we are headed for a repetition of the chaotic market situation that developed in the first three quarters of 1958 unless the recent buildup in inventories is soon reversed."

—R. W. McDowell
President
D-X Sunray Oil Co.

"The [import] controls should increase the demand for domestic crude oil. But at the same time, controls have raised a serious problem of marketing Venezuela oil."

—Howard B. Keck
President
Superior Oil Co.

"We need better public relations. For years we have built up public misunderstanding by bragging too much about our successes. Now it is time we told people about a few of our failures. People must realize there are ten dry wells drilled for every one that is successful."

—J. Paul Jones
President
Pennsylvania Grade Crude Oil Assn.

"There's a small group in Washington with a highly emotional attitude which is determined to gain public favor by pretending to do something for the public. They're the ones who are trying to reduce the percentage depletion provision—something that shouldn't be done at all. One thing that you have to watch out for is that their emotional attitude may boil over into other areas."

—James H. Duff
Former U.S. senator and governor of Pennsylvania

. . . and Letters

Dear Sir:

I held the office of Secretary-General of the Venezuelan government from 1948 to 1952. Today, in common with many of my countrymen, I am concerned about the oil policies of our government. I would not like your readers to think that the views expressed by the Minister of Mines & Hydrocarbons, Dr. Perez Alfonzo, [PW—Mar.6'59,p32] are shared by all responsible Venezuelans.

We find Dr. Alfonzo deep in Arab politics. "We attach great importance to this meeting," he is reported to have said, referring to the Arab Oil Congress sponsored by the Arab League, which started Apr. 16 in Cairo. The League is composed of Egypt, Syria, Yemen, Jordan, Lebanon, Libya, Sudan, Tunisia, Morocco, Iraq, and Saudi Arabia. The latter two are the only major producing countries in the Middle East, and one of these, Iraq, will not attend.

His earlier statement also, that he is not concerned with U.S. oil import restriction [PW—Feb.20'59,p24], is the most amazing of all, when Venezuela's future depends on oil sold in the U.S.A., a privileged market because of high-cost local production of oil while ours is relatively low-cost. It was not so during the administration of General Lopez Contreras, when in 1939 Venezuela obtained by special treaty with the U.S.A. a quota of 71.9% of imports of petroleum and fuel oils which, together with that of the Netherlands, amounted to a total of 92.2%. In the same issue of Petroleum Week, it is also reported that the minister is "more concerned" that import restrictions may lower foreign oil prices, and believes that the Arab League is the answer to the problem.

Unfortunately, Dr. Perez Alfonzo is not alone in his belief that the Cairo pilgrimage, at this time and in this fashion, will resolve the oil problems of Venezuela created during 1958 due to the ineptness of its politicians. Both the majority and minority leaders in the Congress of Venezuela, including the Communists, support Dr. Alfonzo's oil policies, as evidenced by their published declarations in Caracas. These policies are basically inspired by a suspicious attitude toward the oil companies, due to lack of adequate knowledge concerning the positive role of private corporations, highly efficient and experienced, in such a complex industry.

Miguel Moreno
New York, N. Y.

Petroleum Week *will publish each week comments from readers on timely, pertinent subjects. Such expressions are welcome.*

Address all such correspondence to LeRoy Menzing, Editor, Petroleum Week, *330 W. 42nd St., New York 36, N.Y.*

engine power
BY CATERPILLAR

The new D342 Spark-Ignition Engine... lowest cost-per-horsepower gas engine

The new Caterpillar D342 Spark-Ignition Engine has the lowest cost per horsepower of any gas-operated engine you can choose.

You can select either the 7.5:1 compression ratio—for butane, propane or field gases—or the maximum efficiency 10:1 compression ratio engine for methane-type gas operation. And you can switch to diesel operation simply by changing pistons and fuel systems.

This is another dependable power-where-you-need-it Caterpillar Engine for oilfield use. Specify Cat power or see your Caterpillar Dealer who will demonstrate the ways Caterpillar will do more things and do them better for you.

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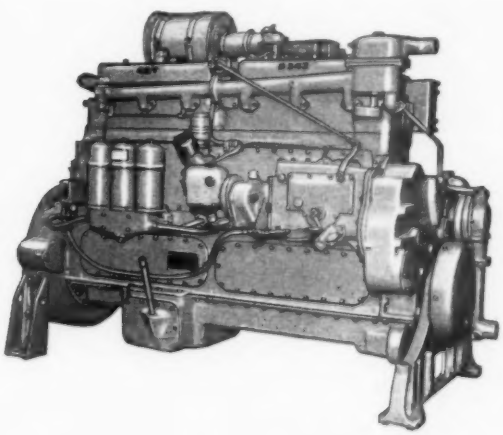
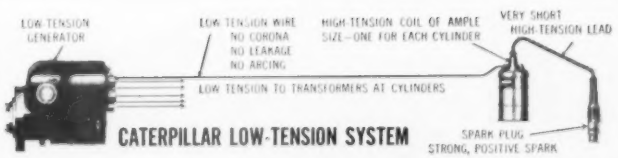
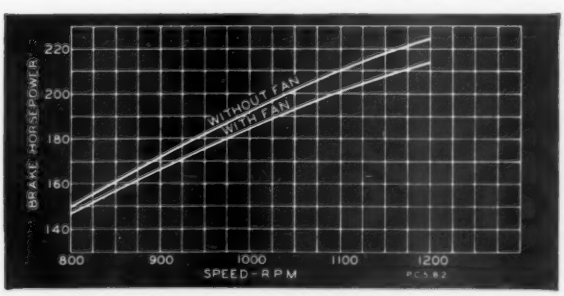


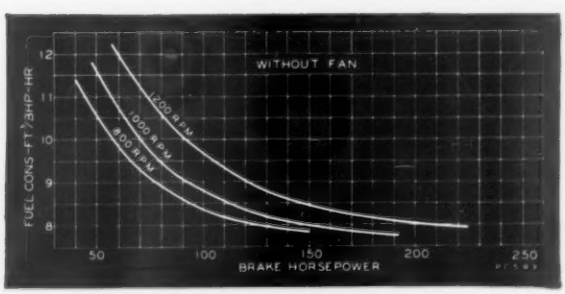
With the 7.5:1 compression ratio, the D342 Spark-Ignition Engine produces 200 BHP at 1200 RPM, without fan. At the same RPM without fan, the 10:1 compression ratio produces 225 BHP.



The D342 Spark-Ignition Engine has this safe, positive ignition system



Highest horsepower per dollar you can buy 10:1 compression ratio



Curves illustrate low fuel consumption 10:1 compression ratio

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USS

Add all three selling points with just one additive:

Du Pont RP-2

Now you can pack three potent selling features—anti-rusting, anti-stalling, and self-cleaning—into your gasolines with just one additive, Du Pont RP-2.

CONTROLS RUST. RP-2 forms a barrier between metal and moisture. This blocks rust formation throughout the entire fuel system from gas tank to carburetor. Stops rust during storage at refinery and at service stations, too.

CONTROLS CARBURETOR ICING. RP-2 prevents stalling caused during idling by icing of carburetor throttle plates. Many gasolines require this protection when temperatures range from 22 to 55°F. and relative humidity exceeds 65%.

CONTROLS CARBURETOR DEPOSITS. RP-2 adds a detergent action to your gasolines which not only keeps new carburetors clean, but gradually cleans the throttle plate and throat of carburetors which are already dirty.

CONTAINS PHOSPHORUS. RP-2 contains phosphorus, so you can take a "phosphorus credit" if you're already using phosphorus for control of surface ignition.

For more information on this product and a complete program for marketing its advantages in your gasolines, call in your Du Pont representative or write Petroleum Chemicals Division, E. I. du Pont de Nemours & Co. (Inc.), Wilmington, Delaware.

HOW TO SELL GASOLINE WITH RP-2: This sample advertising kit shows how you can use RP-2 to create new market excitement for your brand of gasoline. See your Du Pont representative or write for the kit.

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Creole Petroleum Corporation of Venezuela, one of the world's largest producers of crude oil, has pursued a dedicated course of conservation and maximum utilization of Venezuela's natural resources. In so doing, complex engineering problems in gas injection have been created.

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Evidence that the client was pleased with this $20 million project came when Brown & Root was awarded a contract to design and construct Conservation Plant Tía Juana Two of 84,000 horsepower, and then again Brown & Root was successful in obtaining the design and construction contracts for Tía Juana Plant Three of 98,000 horsepower. Conservation Plant Bachaquero One, Creole's fourth repressuring station, is currently on Brown & Root's drawing boards.

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60-Second Summary

WHAT'S HAPPENING IN OIL

April 24, 1959

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Russian "planners" are following Russian money into Iraq. In return for financial aid, Russians will sit on boards that spend a big part of Iraq's oil revenues. . . . p. 17

•

The antitrust aspects of marketing practices are badly muddled. FTC ruled (in a beer case) that cutting the price of a national product to or near the price of a local product can be illegal. A Chicago court reversed the decision, but now FTC is asking the Supreme Court to reverse the lower court. . . . p. 22

•

Alberta's Swan Hills may be Canada's biggest oil field. A series of recent discoveries indicate one big pool, rather than a group of small ones. . . . p. 27

•

Don't underestimate the importance of a Federal Power Commission examiner. He does the spade work on gas rate cases. With rate patterns for producers still to be established, his decisions can have long-range impact. . . . p. 18

•

An electronic "nose" is being used to sniff offshore waters for gas seeps, thus pinpointing areas where oil and gas reservoirs may be located. . . . p. 34

•

Drilling time has been cut 25% and mud costs reduced 50% in the Anadarko Basin through preventative measures against lost circulation in that unusually tough area. . . . p. 39

•

While process computers are solving a lot of problems, they aren't problem-free. Refiners are finding that each application requires careful advance programming, particularly for centralized control units. . . . p. 50

•

The oil industry appears headed for its worst summer oversupply in years. Economists are prescribing sharp cuts in runs, but few believe refiners will do so in the immediate future. . . . p. 15

•

Drilling and completion costs can be lowered substantially. Slim holes, improved drilling fluids, and other techniques helped Humble to cut costs by 8% in 1958. . . . p. 3

•

Oil research is shaping into a real race, with many firms planning record spending. All segments are involved, but most emphasis is on production and processing. . . . p. 20

•

Transcontinental Gas Pipe Line plans a big expansion in off-shore gas gathering, doubling its take by the end of 1959. . . . p. 60

Up to the Minute / SIGNIFICANT LATE NEWS

AT-A-GLANCE PETROLEUM WEEK Copyright

April 24, 1959

The imports control program is being caught in some sharp crossfire:

• **Venezuela is protesting any plan that would give Canada special consideration** that Venezuela wouldn't share. Venezuelans are stirred by reports that restrictions on Canadian crude might be eased.

• **A federal judge has issued a temporary restraining order** which stays enforcement of limitations imposed on a Seattle (Wash.) firm. The order permits U.S. Oil & Refining Co. to import oil without a license until the Oil Import Appeals Board rules on its case—a request to import unfinished oil only.

A U.S. senator is pressing for changes in the program. Sen. Thomas Kuchel (R., Calif.) wants West Coast importers exempted from a rule limiting imports of unfinished oil to 10% of an importer's total allocation.

•

U.S. scientists are taking the first step in a project to drill deep into the earth's interior. Next month, a private expedition will inspect the ocean floor north of Puerto Rico for a good drill site from which to probe the "moho"—the inner boundary of the earth's crust.

•

Saudi Arabia wants oil companies to help build a vast Mideast pipeline system to link the Persian Gulf region to a Mediterranean terminus. Abdullah Tariki, Saudi Arabia's oil director, told the Arab Oil Congress this week that oil firms could help finance the $600-million project by guaranteeing bank loans or by providing funds of their own.

"We don't need Marshall Plans or Eisenhower Doctrines, but we need economic and technical cooperation," Tariki told the oil congress.

The plan is for twin 32-in. lines to carry 1,050,000 b/d from Iraq through Syria and Lebanon. Feeder lines would include these: an 18-in. line from Basra, in southern Iraq; a 26-in. line from Kirkuk, in northern Iraq; a 26-in. line from Kuwait; and a 28-in. line from Dammam, Saudi Arabia, to be joined by a 14-in. feeder line from Qatar. If Iran participates, the system would be adjusted to serve that area.

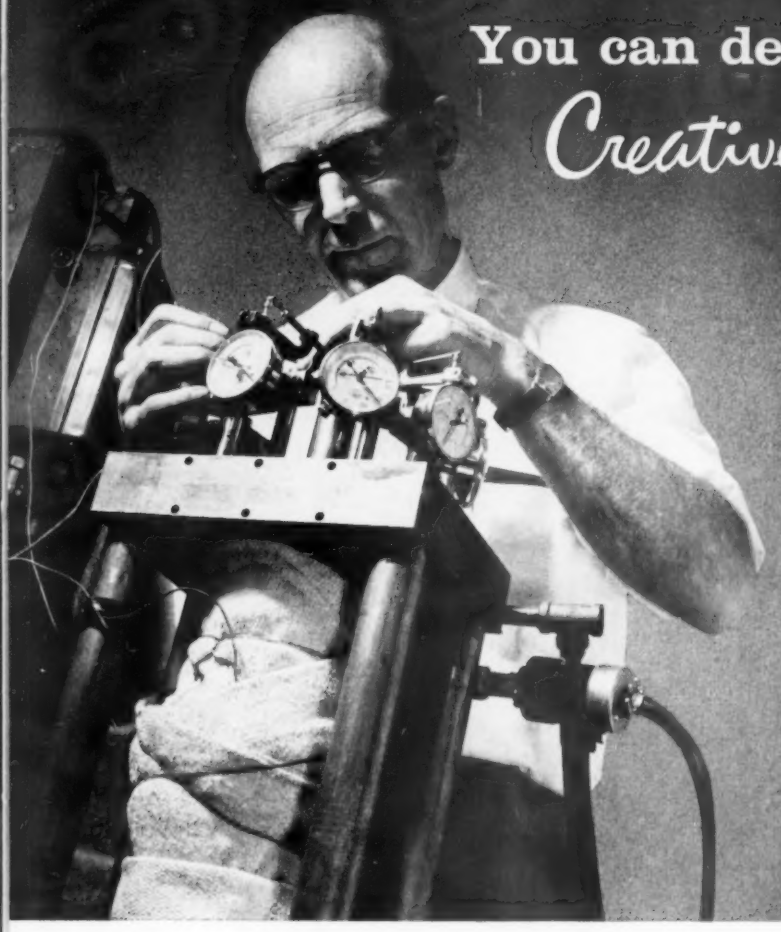
•

Shipments of Four Corners crude to California are being stepped up to about 80,000 b/d, enabling the Four Corners Pipe Line to cut rates. Effective May 1, the new rate will be 40¢ a bbl., down 10¢. The higher movements west will reduce shipments of Four Corners oil eastward at least temporarily.

•

First-quarter oil earnings, now trickling in, reflect the improved demand, which was up 6.3% in the January-March period. Texaco's net jumped $20.2-million over last year's depressed first three months, to $90.2-million. **Texaco's profits were the highest for any first quarter, and the second highest for any quarter,** in the company's history. Sun Oil's earnings were $11.2-million, up from $6.2-million last year.

You can depend on W-K-M's *Creative Engineering*



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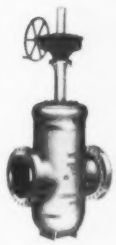

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Steel mill finishing operations, like threading this length of casing, show how steelmakers are part of the driller's team because . . .

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Skilled tube makers with half century's experience and distributors whose first loyalty is to you, join your team when you use Pittsburgh Steel Co.'s API Oil Country Goods.

We never saw an oil rig set up in a steel mill but we maintain that's where every well begins. Just as you start digging a ditch by getting a shovel, so the first step in drilling an oil well is getting rugged, dependable materials like drill pipe, casing and tubing.

That's where Pittsburgh Steel Co. starts its partnership with the oil man. If the steelmaker has been producing good materials for nearly 50 years—and Pittsburgh Steel has—he's a good bet to team up with.

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Let a typical Mr. Independent Distributor tell what's been going on in the oil business recently:

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The independent distributor's store is a big-time operation with better stocks than ever.

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C. W. Cotton Supply Company
Tulsa 5, Oklahoma
Franklin Supply Company
Denver 10, Colorado
Houston Oil Field Material Co.
Houston, Texas
Industrial Supply Company
Wichita Falls, Texas
Iverson Supply Company
Tulsa, Oklahoma
Longhorn Supply Co., Inc.
Houston 14, Texas
Lucey Export Corporation
New York 7, New York
Lucey Products Corporation
Tulsa 19, Oklahoma
McJunkin Corporation
Charleston 22, West Virginia
Midland Supply Company
Wichita 7, Kansas
Mountain Iron & Supply Co.
Wichita 2, Kansas
The Producers Supply & Tool Co.
Fort Worth 2, Texas
Production & Refining Equipment Company
Odessa, Texas
Sandy Supply Company
Wooster, Ohio
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HUMBLE OIL & REFINING COMPANY

PETROLEUM WEEK
April 24, 1959

High Runs Threaten Oil's Best Year

Oil economists warn that refinery throughput must be trimmed to near 7-million b/d if a summer glut of product inventories is to be avoided.

The oil industry, which just finished its best quarter in history demand-wise, is showing every sign of moving into its worst quarter on record supply-wise.

And the oversupply that is now accumulating most likely will plague the industry well into the winter.

Most petroleum economists figure that the oversupply that is now indicated will be serious even if 1959 demand holds up to the levels now expected—a 5% gain over last year. But an unexpected downturn in business activity with an accompanying drop-off in demand would really throw the industry's economics into a tailspin.

What's needed is an immediate cut in refinery runs from the present 8-million b/d level to near 7-million b/d.

Such a sharp reduction, some oil economists warn, is required for May and June to allow the industry to work off the surplus inventories that now exist.

And a reduction in refinery runs would force some cutbacks in domestic crude output during the seasonally low-demand summer months.

Any reduction in domestic output now, they predict, could be more than made up in the fall and winter quarters, since the current expectations are that 1959 demand for domestic crude will run about 9% over 1958.

But a lower rate of domestic output during the next three months, accompanied by lower refinery operations, would maintain inventories in better balance and prevent chaotic market conditions during the summer.

Few industry observers believe that the industry will reduce runs substantially, despite the need.

Several refiners this week announced plans to reduce their runs to prevent further build-up in refined product stocks. But the cutbacks announced so far are small.

R. W. McDowell, president of D-X Sunray Oil Co., which cut runs 10% at its two Oklahoma refineries, says there is "absolutely no justification" for the present rate of runs.

For one thing, many refiners already are set to continue high runs based on the crude that will be available next month.

The larger refinery buyers of crude asked for and received a contraseasonal increase in the Texas allowable for May.

The Railroad Commission issued a 12-day producing schedule for next month, up one day over April, even though some buyers said that a 10-day schedule would give them adequate crude.

The initial Texas allowable for May will be increased by 106,906 b/d, to 3,152,765 b/d. It marked the first time that the number of producing days have been raised in Texas in May since 1953.

Also, both New Mexico and Louisiana allowables will be up slightly in May, the latter primarily to cover new production.

In New Mexico, the Conservation Commission added 1 b/d to the unit allowables in both the southeast and northwest portions of the state, resulting in an increase of 8,747 b/d in the allowable to 356,570 b/d.

The import control plan provides another reason for keeping runs high.

One close follower of industry operations foresees that runs between now and the end of September will average 8-million b/d, or about 6% over the like part of 1958.

And for the last quarter of the year, it is not unlikely that runs may be increased to about 8.4-million b/d as importers make every effort to maintain high runs as a basis for quotas.

At such refinery rates, with restrictions on imports, it could be expected that purchasers would need domestic crude output of more than 7.2-million b/d in May, a similar rate in June, thereafter increasing gradually to almost 7.7-million b/d by the end of the year.

That would place domestic crude production in the remaining eight months of 1959 at about 9% above the 1958 level.

Assuming that demand holds at the present rate, indicating a total of 9.8-million b/d for the year, the inventory accumulation for all of 1959 would amount to about 12-million bbl. But there would be trouble during the summer months, when the inventory build-up would be particularly unwieldy, bringing heavy downward pressure on prices of all products—and possibly crude, also.

A glance at the present stock positions of the principal products shows the surplus position that is starting to accumulate.

Gasoline stocks at the start of April were nearly 25-million bbl. above what industry executives recently said were "ample."

Even assuming that gasoline demand continues at its strong pace—currently 7.5% over 1958—some economists predict that, by Nov. 1, motor fuel inventories will still be from 15-million bbl. to 20-million bbl. higher than the "ample" estimates given the Railroad Commission last month (PW—Mar.27'59,p12).

Distillates inventories ended the "heating season" on Apr. 1 some 15-million bbl. above "ample."

And by the start of the next season on Nov. 1, it's now figured that they will be at least 25-million bbl. to 30-million bbl. over the level considered desirable by most officials.

The trouble started with too high a level of imports and greater-than-necessary refinery runs in the first quarter. And the chance for corrective action is fast slipping away.

For each week that cutbacks in operating rates are delayed, the bulge in inventories becomes that much larger, which makes the needed correction more difficult later on—particularly after prices have broken.

The required correction, though, puts the burden on domestic producers over the next few months. And that burden was created primarily by unrealistic levels of imports in the first quarter.

PETROLEUM COMMENTS / By Wanda M. Jablonski

Arab Oil Congress Plays Down Politics

CAIRO—The long-awaited and oft-postponed first Arab Oil Congress was finally born in Cairo this week as quietly as a lamb.

Absent were the expected fireworks, soapbox oratory, and demands and recriminations against Western oil companies that marked so many of the advance Arab statements on the subject.

From its beginning on Apr. 16 until the conclusion of its formal sessions Wednesday, the Congress—unexpectedly well attended by more than 500 representatives of governments and oil companies—was distinguished more by what didn't materialize than by what did.

Absent were any official demands for changes in concession terms or in 50-50 oil profit sharing (only talk of 60-40, in fact, appeared in the Western press). Even Saudi Arabia's favorite demand for sharing in overseas refining and marketing profits was touched on only in an academic way.

Absent too from the official Congress agenda was the Venezuelan government's much-publicized proposal for an agreement with Mideast producing states to limit production and stabilize prices—so that interest evoked by this proposal was confined to informal back-room conversations.

Instead, the Congress leaders avoided all political or controversial issues like the plague. Papers delivered by Middle East oil operating companies were confined to technical subjects. Even the government delegates delivered an innocuous series of technical and economic papers on such matters as conservation and pipelines. The nearest thing to raising a little blood pressure was a Saudi government legalistic presentation on the sovereign right to change oil contracts.

In this bland climate, the Congress quickly settled down, like any other convention, into informal exchanges of information and opinions among the various participants and observers milling around in the corridors, hotel lobbies, and receptions.

If it wasn't for the romantic Nile setting and the Arabic language, this could have been just another routine session of the API in Chicago.

This was a far cry from the Arab League's original purpose in calling an oil congress, which was to achieve unified Arab oil policy vis-a-vis Western oil companies, and to increase Arab control of the industry.

* * * *

The decision of Iraq to boycott the meeting in Cairo, however, killed the punchline by making it impossible to use the conference as a forum for Arab unity. Iraq's absence left Saudi Arabia as the only Arab League member of the Big Four Middle East oil producers participating in the conference. The other two big producers are not League members, Iran being non-Arab, and Kuwait being under British protection. The former sent only two nonparticipating observers. The latter sent a government delegation, but refrained from an active role.

A second, and perhaps equally compelling, reason for the subdued note of the conference was the apparent feeling of the United Arab Republic that this was not the time to beat the oil drums. In its present state of difficulties with Iraq and tensions with Russia, Cairo has been seeking to reassure its Arab neighbors that it is not trying to dominate them through the Arab League. At the same time, it has also been trying to reassure the West that its fears that Nasser wants control of Middle East oil are equally groundless.

And to dispel all doubt, the Secretary-General of the Arab League, Abdel Khalek Hassouna, opened the meeting in Arabic by announcing that, "The objectives of this conference are purely technical and scientific."

Although Mohammed Salman, Director of the League's Oil Office, did urge companies to "restudy their agreements in order to eliminate anything which makes the Arabs feel that their rights have been infringed," he also emphasized that, "We look upon oil purely from an economic and commercial viewpoint."

* * * *

In this atmosphere, the principal interest naturally turned away from the Congress sessions themselves and focused on the arrival of the impressive 14-man Venezuelan delegation, headed by the Minister of Mines & Hydrocarbons, Dr. Juan Perez Alfonzo.

The Venezuelan government had announced its desire to reach some sort of production and price stabilization arrangement with the Middle East, and this theme has been steadily aired by Perez Alfonzo since his arrival in Cairo, through almost daily press conferences in his hotel suite.

As time went on, however, it became evident that nothing concrete would be forthcoming on this during the Cairo meeting.

While everyone was in favor of stable prices in principle, most of the delegates felt that a system of world allocations would be impractical. And the idea of restricting production evoked little noticeable enthusiasm among representatives from the Middle East states with vast oil reserves.

Even Abdullah Tariki, Saudi Arabia's Oil Director, and the most outspoken enthusiast of unified policy among producing states, while calling Perez Alfonzo's idea "appealing," admitted its practical realization was a long way off.

Tariki told PETROLEUM WEEK that the first step would have to be to form a committee of Middle East producing countries to meet periodically to discuss mutual problems and to evolve a unified policy. "We think if we can agree on such a committee with Iraq and Iran, Kuwait will follow suit," he said. "Later this could evolve a system of production allocations. This Middle East committee could then cooperate with Venezuela and the Caribbean. But first we must have the Middle East committee, because, the Middle East should cooperate as one unit. Thus, this isn't something that can be done overnight. It will take time."

The one immediate result of the Venezuelan delegation's trip was an agreement with the Cairo government to exchange embassies, primarily for the exchange of oil information.

* * * *

One feature of the Congress that drew praise in all quarters was the multimillion-dollar oil exhibition, including 27 exhibits, which will be open another week.

Italy's state-owned Ente Nazionale Idrocarburi made a strong bid to steal the show by erecting a towering Super Ideco 711 drilling rig, brilliantly lit all night, over the Gezira fairgrounds in full view across the river from Cairo's plush hotels.

The largest and almost elaborate exhibit is Aramco-Tapline's, while Kuwait Oil Co. featured handsome color photography of life in Kuwait.

Interestingly, while West German and other European equipment firms were asked to (and did) participate, neither Russia nor the satellite countries were invited, despite the fact that the Eastern Bloc is supplying oil equipment to UAR's Syrian province.

By all odds, the UAR delegation was the largest—amounting to nearly half the total attendance—with 18 government delegates and over 200 oil men. The UAR group also presented 47 of the total of 64 papers on the agenda.

The largest single company delegation was from Aramco-Tapline, followed by Kuwait Oil Co.

Soviets Join Iraq Boards

The threat of a Russian take-over in Iraq is becoming more evident. Soviet representatives will now have a direct voice in the economic planning of the Middle East oil-producing nation.

This was disclosed last week by Dr. Mohammed Salman Hassan, secretary of Iraq's Development Board. Russia's recent $140-million loan and aid agreement with Iraq, he said, gives the Soviet Union the right to sit in on Iraqi planning agencies. Those are accordingly being reorganized.

A joint Soviet-Iraqi Central Planning Board will be set up to replace the Iraq Development Board, which has directed the spending of 70% of Iraq's $200-million-plus annual oil income.

The nine-year-old board was responsible for planning and financing long-range development.

A Ministry of Mines & Hydrocarbons is one of five new ministries to be set up. Soviet "liaison officers" will be included in each, according to Iraqi spokesmen.

The Council of Ministers has approved liquidation of the Development Ministry and establishment of the five new ones—Oil, Planning, Industry, Housing & Public Works, and Agrarian Reform.

Iraq's Directorate General of Petroleum Affairs will now become the oil ministry—which apparently will bear the same designation as that of Venezuela. The government oil refineries, and all other petroleum departments, will be attached to this new ministry.

All of the ministries will work closely with the new Central Planning Board, which will include Russians appointed by the Soviet government.

The board will be headed by Iraq's pro-Soviet Economics Minister, Dr. Ibrahim Kubba.

The possible effects on future oil operations cannot yet be gauged.

Economics Minister Kubba recently declared that the government "still adheres" to its previously-stated oil policy.

"This policy," he said, is "based on upholding existing agreements," with the "possibility of amending them only with the full consent" of IPC.

Iraq's present attitude regarding new oil agreements is not yet clear. The Russians earlier were said to have offered some kind of 90-10 profit-sharing deal on Iraq's Persian Gulf offshore oil rights.

But the only oil work specifically listed among the 25 projects covered by the new Soviet loan agreement looks relatively noncommittal. As it stands now, it specifies seismic work only, in Iraq's Persian Gulf waters and also on 116 sq. mi. in the Khanaqin area. Both are former concession areas that were given up last year. IPC has agreed in principle to surrender others.

There will be no place in the new setup, however, for the Western consulting and engineering firms that participated in Iraq's previous development program.

Contracts for the 25 projects provided for under the Soviet aid pact will go to state concerns in the Soviet bloc. Most involve light and medium industrial installations, unlike the long-range projects under the former program. Each must be defined and contracted for separately within seven years.

Baton Rouge Union Vote Faces Delay

It may be months, perhaps as many as 18 months, before a determination is made as to what union is to represent workers at Esso Standard's Baton Rouge (La.) refinery.

Part of the cause for the delay in a showdown between rival unions was the filing of unfair labor practice charges against Esso by the union now representing the workers, the Independent Industrial Workers Union.

By government rules, the National Labor Relations Board cannot set a bargaining election while such charges are pending.

There has been some speculation that the independent union may have filed the charges with the thought in mind of stalling a bargaining election to give it more time to negotiate a contract settlement.

However, some of IIWA's top officials apparently are behind the move to link the independent union with Jimmy Hoffa's Teamsters.

The Teamsters are claiming that when an election is held they will win it. They say they have 65% of the employees signed up. And they say also that they will continue to push their drive even if the independent union does succeed in reaching agreement with Esso on a new contract.

The Teamsters are giving the drive added emphasis because their efforts to win over independent oil unions elsewhere may hinge on the outcome at Baton Rouge.

FPC Examiner Has a Key Gas Role

Examiners for the Federal Power Commission—the men themselves, the way they work, and the decisions they make—are destined to become increasingly important to the natural gas industry.

A dozen FPC examiners sit in judgment, as both judge and jury, on matters which can sometimes make or break a small gas producer, or which can mean the difference between a profit or a deficit for a large company.

A recent example of an examiner's power and stature is the Phillips gas rate decision written by FPC's Joseph Zwerdling (picture).

Although there is little doubt that Zwerdling's decision will be appealed all the way to the U.S. Supreme Court, many in the industry think the examiner's findings will be adopted as the eventual method of regulating producer prices. At least, they will carry considerable weight.

The Phillips case underwent 82 days of hearings, stretched over 18 months.

There were periodic recesses because the case, like many FPC proceedings, was presented in stages.

First, Zwerdling heard the presentation of FPC's own staff. Although he is interested in the staff position, Zwerdling gives it no more and no less consideration than the views of other parties.

Later major presentations came from Phillips, East Coast distributing company intervenors, the State of Wisconsin, Pacific Coast distributors, and others.

After each stage of the hearings, lawyers received recesses to study the latest testimony before starting cross-examination.

Quick decisions—like a judge's rulings from the bench—are frequently necessary. In the Phillips case, Zwerdling was called on often to determine immediately whether certain evidence should be admitted, whether a certain question should be allowed in cross-examination, whether to cut off a discursive witness or lawyer.

Attorneys practicing before FPC view Zwerdling as one of the best examiners—even if he rules against them.

"He handles his hearings well," says one attorney. "He will maintain an orderly fashion—which is important—and he keeps rather firm control. Some of them let hearings get out of hand sometimes."

Zwerdling's opinions are conceded to be well-reasoned, even by those who strenuously disagree with him.

Once hearings are completed, an examiner's work has only begun.

JOSEPH ZWERDLING may be a big factor in your future. As a Federal Power Commission examiner, his work on natural gas rates carries a lot of weight.

In the Phillips case, Zwerdling had to decide about 20 hotly-contested issues—a particularly large number for any natural gas proceeding.

Many of the issues were outlined in detail by the two rounds of briefs submitted by the parties. Zwerdling had to read a score of initial and rebuttal briefs by top-notch industry lawyers taking opposite positions.

"You have to watch out particularly for some areas that are not covered in any of the briefs, however," Zwerdling says.

The Phillips case required decisions on such controversial matters as (1) whether to use the cost-of-service method for establishing a fair and reasonable price, (2) determining the treatment of depletion and other tax provisions, (3) the allocation of costs between oil and gas, and (4) what constitutes an equitable rate of return.

Zwerdling tackled the issues one at a time—with each knotty problem requiring perhaps several weeks of deliberation before a decision was reached.

Zwerdling makes so many notes on the briefs submitted to him that, he says, they often "look like a Rube Goldberg cartoon."

"Each examiner has his own working habits," he adds. "Notes are an important part of mine."

Zwerdling worked at his office, at home, and while en route, in writing his Phillips decision.

"However, more time frequently isn't the answer in a difficult decision," he says. "In this case, I had to use some mechanical aids."

He began dictating his decision last October to a secretary shared with another examiner.

Zwerdling proofread the copy at his home to expedite the decision. He sent the first 100 pages of the ruling to the printer while dictating the next section. He was still dictating the final pages only a week before the Phillips decision was made public.

Although the Phillips case was bulky, Zwerdling refutes arguments that the cost-of-service theory is impossible to apply. He did apply the method, differed with Phillips on only a few major points, and came within a cent of setting a price that matched the 1957 national average.

"Fascinating," Zwerdling says.

Zwerdling finds his job challenging and interesting: "It's a virgin field."

Where other government agency work frequently becomes routine, not so at FPC, the examiner says. One major reason for the variety offered an examiner, he believes, is the lack

of specific guidelines from Congress. Much interpretation in natural gas matters is left for the examiner.

Zwerdling had considerable legal experience before becoming an FPC examiner.

A Michigan native, Zwerdling is a 1933 graduate of the University of Michigan law school, a Phi Beta Kappa, and a former clerk to the Michigan State Supreme Court, and once served as assistant attorney general in that state.

He practiced law in Detroit, served in the army, then entered federal government work in 1946 as a trial lawyer in the Justice Dept.'s Office of Alien Property. Later he was assistant chief of counsel of the Office of Price Stabilization.

Zwerdling became an FPC examiner in 1953.

In his austere office, Zwerdling works alone, surrounded by stacks of documents on his current case. Only the top brass in a government agency get such trappings as window drapes and curtains. An examiner doesn't. Zwerdling does rate a carafe, but doesn't use it.

Crude Swaps Are Growing

Trading of domestic and imported crude is going on at a brisk clip as oil companies seek to make the most advantageous adjustments under the mandatory oil import plan.

Companies that need or want more imported crude than their quotas permit are exchanging domestic oil for imported oil. Generally, these are coastal refiners.

On the other hand, domestic refiners—especially inland ones—who now have import quotas are exchanging the imported crude for domestic crude closer to their plants.

In most trades, a little more than a barrel of domestic crude is exchanged for a barrel of imported crude.

In some cases, the trading is being done for convenience of processing and transportation.

Gulf Oil Corp. has been the most active in trades that have been made public thus far (as required by the rules). Gulf has made trades with Cities Service, Seminole, Wolf's Head, Warrior, Vulcan, and Crown.

• Cities Service will transfer to Gulf some 1,537,000 bbl. of Middle East crude which the former will import. The exchange ratio agreed upon is one barrel of domestic crude for one barrel from Kuwait, and 1.08437 bbl. of domestic for each barrel from Iran.

• Gulf will take the entire 190 b/d allocation for crude and unfinished oil of Seminole Asphalt Refining, Ltd. Seminole will get domestic crude from Gulf at the rate of one barrel of Kuwait crude or unfinished oil for about 1.4 bbl. of Baxterville (Miss.) crude.

• In the deal with Wolf's Head Oil Refining Co., Gulf will take all Kuwait crude and unfinished oil imported by Wolf's Head until June 30 in exchange for Bradford grade Pennsylvania crude to be supplied by Gulf.

• Gulf will receive Warrior Asphalt's 120 b/d allocation at an exchange ratio of one barrel of Kuwait crude for 1.4 bbl. of Baxterville (Miss.) crude.

• Gulf will take Vulcan Asphalt Refining Co.'s 210 b/d allocation on the same terms as the Gulf-Warrior agreement.

• In the Gulf-Crown trade, announced last week, Crown will exchange 43,232 bbl. of Kuwait unfinished distillate for 46,664 bbl. of Gulf Coast crude.

Shell and Tidewater have entered into a big exchange agreement.

Shell, until June 30, will deliver Venezuela crude to Tidewater's Delaware City refinery.

Shell's allocation in Dist. I-IV is 22,760 b/d.

In turn, Tidewater will deliver from 15,000 to 18,000 b/d of Texas, New Mexico, and Oklahoma crudes to Shell's Houston and/or Wood River (Ill.) refineries.

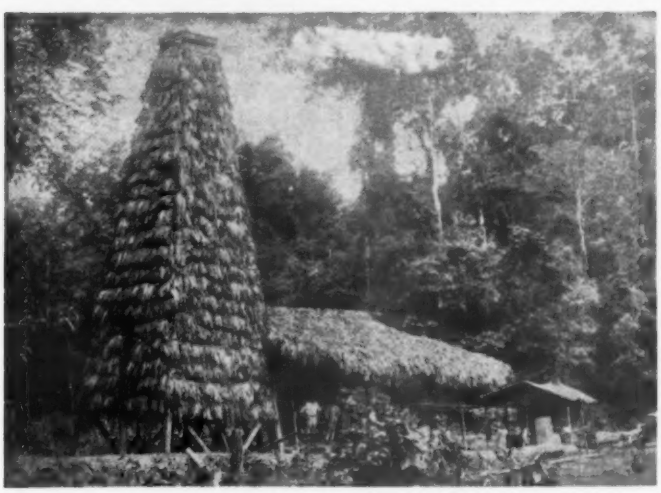
Atlantic Refining Co. is also an active trader for imports.

Atlantic will have Naph-Sol Refining Co.'s 590 b/d of imports delivered at Atlantic's Philadelphia refinery in exchange for domestic crude to be supplied for processing at the Naph-Sol refinery in Muskegon, Mich. One barrel of Venezuelan crude will be exchanged for 0.8464 to 1.1663 bbl. of West Texas sour crude.

Atlantic also is taking the 3,690 b/d of imports of the Cooperative Refinery Assn., Kansas City, Mo.

Atlantic and the National Cooperative Refinery Assn., of Wichita, Kan., will exchange 2,870 b/d of Venezuelan for Kansas crude, at Philadelphia and McPherson, Kan.

Oil Man's Album



Even Derricks Wore Skirts in the Gay 90s

Back in the Gay 90s, even some derricks wore long skirts—but for comfort, not fashion. This drilling rig, deep in an Indian jungle, was thatched with a skirt of palm leaves in 1893 to shelter the crew from the tropical sun and rain of Digboi oilfield in Assam province. The rig belonged to Assam Oil Co., a subsidiary of Burmah Oil Co., London, England.

(No. 29 in a Petroleum Week series.)

Oil Is Hiking Research Investment

The petroleum industry's spending on research will move up in the immediate future years.

New ventures projected by the larger companies have been translated into dollar investments by the McGraw-Hill Economics Dept.'s latest forecast of research spending.

The results of the survey show that the oil industry is moving ahead on a broad research front.

Last year, according to the survey, oil companies spent $259.2-million on research, while this year the industry will spend $295.5-million.

Oil's research spending in 1962 will be at least 10% higher than the 1959 figure—and very probably a good deal higher than that.

The McGraw-Hill survey found that oil companies already have plans to spend $328-million on research in 1962.

But that figure is almost certain to be exceeded as new research projects are added to current programs in the interim.

How will this growing dollar flow be channeled? It will be directed primarily against the most basic industry problems, which loom larger every year—producing more oil and better products as economically as possible.

Consequently, research in production and processing techniques will claim by far the lion's share of the industry's future research outlays.

In production, virtually every integrated company with a research department will be working on new methods of improving oil recovery.

A wide variety of approaches to this problem are now getting increasing emphasis. The host of techniques under study include the use of surfactant chemicals to reduce the forces causing oil to stick to rock; underground combustion to force oil hard-to-recover toward a production well; miscible slug injection into a reservoir, again to force greater amounts of oil out of the ground; control of premature water production which often forces early abandonments; and new fracturing methods using controlled underground detonations.

And, since it is becoming increasingly difficult to find new crude reserves, recovery of heavier crudes—including those trapped in tar sands—is getting more research attention.

Union Oil Co. of California, for instance, says that first results of its new 200-ton-per-day pilot plant to mine and extract heavy oil from the large tar sand deposits near Orcutt, Calif., are "encouraging."

Union's current objective at Orcutt: "To obtain sufficient data to determine the economics of the technique."

Husky Oil Co. expects to have an evaluation on its latest tar sand extraction tests ready shortly.

And research to develop better oil-finding techniques will get almost as much attention as the various recovery projects.

Some of the companies giving new emphasis to this kind of research describe their efforts this way:

- Ohio Oil Co.: "A primary target [of research] has been . . . the stratigraphic trap, which is becoming increasingly important as a source of new petroleum reserves, and which cannot be located readily by present exploratory methods.

"One key to finding these reservoirs appears to lie in improved geologic interpretation of the properties of reservoir rocks and associated rock types."

- Pure Oil Co.: "Better techniques have been developed for evaluating geological and geophysical data by means of improved mapping methods."

- Shell Development Co.: "Geological exploration has benefited from a more complete understanding of how clastic and carbonate rocks have been deposited and altered after their deposition; of what factors control deformation of rocks; and of conditions under which petroleum originates."

- Standard Oil Co. of California: "Notable [advances] are development of improved methods for interpreting seismic signals; and a refinement of a technique for evaluating oil prospects through examination of fossilized spores and pollens present in rock samples."

In processing, product quality improvement—particularly in motor fuels—will retain its research priority.

Researching methods for economical manufacturing of sufficient high-octane gasoline blending components will keep oil's laboratories particularly busy in the years ahead.

Humble Oil & Refining Co. says that it is continuing research "on several processes currently in use or potentially useful in refining operations."

Phillips Petroleum Co. says that improvements in known processes—such as the new reactor it has just developed for alkylation units—can do much to help refiners make octanes more economically.

And most companies involved in processing are doing more and more catalyst flow studies—many by using radioactive isotopes.

Other research on motor fuels will be directed toward additives that will be more effective in reducing engine deposits, icing, and fuel instability.

But gasoline is only one of the products that's due for heavy research scrutiny.

"One problem that faces us," Texaco says, "is the development of fuels and oils that can withstand the severe conditions of high speed, extreme temperatures, and radiation that the new technology is demanding."

Jet fuel research will also broaden as new aircraft make necessary more demanding specifications.

Product development—in petrochemicals, high-energy fuels, and even fuel cells—will also get a heavier research play.

Phillips lists its developments in synthetic rubber and plastics among "the most promising results in our 1958 research work."

Shell points to insecticides and soil fungicides as areas where oil research may pay dividends.

Socal looks forward to research in detergents, plastics, and paints, as well as "the possible production of entirely new chemicals from petroleum."

And Esso Research & Engineering Co., Gulf, and Standard Oil Co. (Ind.), among others, are working to develop high-energy, solid propellants for rocket fuels.

What's New / IN THE INDUSTRY

Tennessee Gas Transmission Co. again proposes to bring Canadian natural gas into the Midwest, with a $52-million, 504-mi. pipeline from the Canadian border near Emerson, Manitoba, to a terminus near Marshfield, Wis., to tie into Michigan Wisconsin Pipe Line Co. The project replaces plans turned down by the Federal Power Commission last year.

•

Petroleos Mexicanos has arranged to buy $3.5-million worth of petroleum equipment from British manufacturers. The equipment, to be purchased on credit at 6% interest over the next five years, will be used to complete the Minatitlan refinery and to equip an aromatics plant.

•

Maruzen Oil Co. is looking for new U.S. markets to replace the naphtha exports it formerly made to Union Oil Co. of California. The Osaka-based company hopes to increase its U.S. sales from the present 1,700 b/d (to Union) to about 6,000 b/d. Talks of possible exports are under way with Phillips Petroleum Co., and discussions with General Petroleum Corp. and Wilshire Oil Co. are also planned. Recent U.S. import restrictions cut Maruzen's export sales to Union Oil from 4,400 b/d to 1,700 b/d.

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The Canadian Petroleum Assn. is asking the Canadian Government to study voluntary import controls. CPA urges the government to sponsor a meeting of petroleum industry leaders "to seek a voluntary arrangement satisfactory to the government that will insure maximum practicable use of Canadian crude in market areas in Canada."

•

Alberta is proposing a simplified "experience" method to determine oil allowables, to replace its complicated three-step formula. The Oil & Gas Conservation Board will hold hearings in Calgary May 5 to present a plan that would set future allowables as a percentage of the maximum productive rate of individual wells. The percentage to be set each month would be based on the experience ratio of demand to productive ability of individual wells.

•

Continental Oil Co. plans to acquire a two-thirds interest in San Jacinto Petroleum Co., according to an agreement approved by directors of both companies. The plan will be submitted to San Jacinto stockholders May 15. If they approve, San Jacinto will increase its capitalization in order to distribute .34413 share of Continental in addition to each share of San Jacinto held.

•

Continental Carbon Co. plans to construct a $2.5-million carbon black plant at Rotterdam, Netherlands. Scheduled for completion in 1960, the plant will have initial annual capacity of 15,000 tons.

•

Wallace D. Wilson, Wilson Supply Co., Houston, was elected president of the Petroleum Equipment Suppliers Assn. at its annual meeting in Boca Raton, Fla., this week. He succeeds W. T. Powell, Continental-Emsco Co., Dallas-based division of Youngstown Sheet & Tube Co. John G. Staudt, Dowell Division of Dow Chemical Co., Tulsa, was named vice-president.

Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
April 24, 1959

The U.S. Supreme Court will be asked to rule on a beer-company pricing case which could have a major impact on oil marketing. The case is that of Anheuser-Busch, Inc., which is charged by the Federal Trade Commission with illegal predatory pricing practices. FTC claims the beer firm violated the Robinson-Patman Act by lowering the price of premium beer to match lower-priced regional beers in the St. Louis market area, while maintaining a higher price in other areas.

An FTC ruling against Anheuser-Busch has just been reversed by the U.S. Court of Appeals in Chicago. FTC had held that the beer company's actions amounted to illegal area price discrimination under the Robinson-Patman Act—that the company's practices actually injured local competitors. The commission said Anheuser, by matching the price of the regional beers, was actually undercutting local competition.

Meanwhile, an FTC examiner has used the same commission theory in a complaint against Pure Oil Co. (PW—Feb.27'59,p10). Pure is accused of violating the Robinson-Patman Act by helping dealers in Birmingham, Ala., come within 1¢ per gal. of the price charged by private-brand dealers. The examiner followed the commission's lead in the Anheuser case and said Pure also was undercutting competition because the "normal" differential in price was 2¢ per gal.

And FTC attorneys are now using a similar argument in a case against Sun Oil Co. The Sun case has not yet received an examiner's ruling, but an amended complaint now charges the company with violating a "historical" 2¢-per-gal. differential in the Norfolk (Va.) area.

The Chicago court ruling, if upheld, will upset the FTC cases against Pure and Sun. The Seventh Circuit Court said that, in an industry where uniform prices don't exist, there can be no Robinson-Patman violation unless a supplier discriminates in price between competing customers. And since Anheuser was charging all its St. Louis distributors the same price, and the distributors there were not competing elsewhere, the court ruled that FTC could not find Anheuser guilty of price discrimination.

Antitrust experts, however, say the Chicago court's ruling was novel and is a candidate for reversal. The experts take sharp exception to the court theory of legal area price discrimination in industries that do not have uniform prices. FTC has won numerous cases where such prices were not the rule.

So an appeal by FTC to the Supreme Court is assured. Oil company attorneys agree that the Chicago ruling is a departure from the norm, but think the Pure and Sun cases still might be won by the companies even if the Supreme Court upsets the Chicago ruling. If the ruling is upheld, FTC might as well drop the Pure and Sun cases, lawyers say.

With this issue and others still unsettled, oil firms face a perplexing situation. They may be hit with antitrust charges for virtually any type of price move, as has been demonstrated by the variety of suits already filed.

•

A new Justice Dept. antitrust chief is expected to be named soon. Victor R. Hansen, who held the job for almost three years, is leaving to enter private law practice. Hansen wants his top assistant, Robert A. Bicks, to succeed him, but there are other candidates, too.

...his house of wonders

Today the oil refinery is a curious tangle of tubes and towers. But soon it will begin to deliver its benefits far and wide. It will fuel and lubricate power machines. It will help to answer the rising demand for energy from Asia, Africa and the lands of the Pacific.

Standard-Vacuum operates wholly within these areas, exploring, drilling, producing, transporting, refining and marketing oil to meet the growing needs of densely populated countries.

These peoples are resolved to build better lives for themselves and their children. And Stanvac will be there helping, all the way.

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White Plains, New York

A look at today . . . and a glimpse

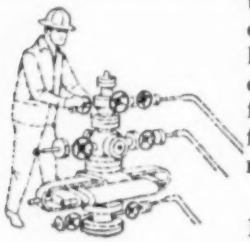
Armour Chemicals for Petroleum Production

Where they work today

Numerous applications for Armour Chemicals exist from the time a well is "spudded in" to the time crude oil is delivered to the refinery. Typically, these chemicals are used in mud drilling, give outstanding corrosion and bacterial protection in producing wells or fields under water flood, and insure corrosion protection in pipelines and terminal storage facilities.

In producing oil wells

Salts made from the Duomeens® (Armour's trade name for diamines), have gained wide acceptance in the petroleum industry as down-the-hole corrosion inhibitors. These oil soluble, cationic, hydrophobic salts form a tough molecular film on steel and markedly reduce corrosion.



Corrosion rates of 0.0014 IPY at a cost of 9 mils/bbl. are not unusual (based on 2 qts./100 bbls. producing fluid). Some of the salts made from Armour's Duomeens are shown at the bottom of the page.

For complete technical data, check "A" in the coupon.

For injection water treatment

Effective corrosion and bacterial protection in water flood operations are provided by Armour polar organic compounds at concentrations as low as 7 to 8 ppm (based on 100% activity). Armacs®, Arquads®, Duomeens and Duomeen salts are successfully being used for this application.

Typical treatment cost

Arquad T-2C-50	1.2 mils/bbl.
Armac CD-50	1.0 mils/bbl.
Duomeen CDA-50	1.1 mils/bbl.
Duomeen TDO-50	0.8 mils/bbl.

There is an effective Armour Chemical for every water system. The brine content of the water is one of the major factors determining the product to be recommended for use.

For example, high corrosion rates in a salt water disposal system in Western Kansas were greatly reduced by using only 6 ppm of Duomeen TDO, one of Armour's oil soluble, water dispersible inhibitors.

Armour's technical staff is continuing to field test many chemicals that will increase injection rates. Ethomeen® C/15, for example, is increasing injectivity at no increase in injection pressures in the Oklahoma and Pennsylvania fields.

Check "B" in the coupon for more information about Armour Chemicals applicable to water flood operations.

In product lines, transportation equipment and storage tanks

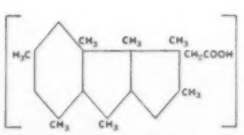
Pipeliners in many parts of the country are now using the Armeens®, Duomeens, or their salts, to protect pipelines from the costly effects of corrosion. By using these Armour Chemicals, operators are doubling —even tripling—life expectancy of pipelines.

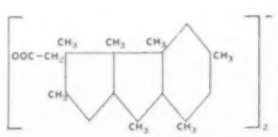
Duomeen T dioleate

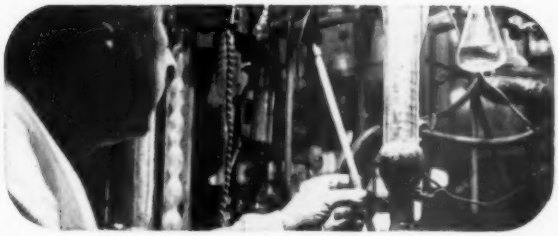
$$RNH(CH_2)_3NH_2 + 2C_{17}H_{33}COOH \longrightarrow [RNH(CH_2)_3NH_3]^{++}[OOCH_{33}C_{17}]^{-}_2$$

Duomeen T Di-Napthanate

$$RNH(CH_2)_3NH_2 + 2 \longrightarrow [RNH(CH_2)_3NH_3]^{++}$$



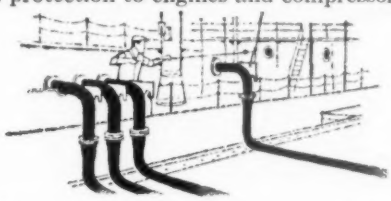




# of tomorrow

from Armour Chemical

Corrosion inhibition is achieved in gas line compressors by adding Arquad T-2C to cooling systems and radiators. Armac CD/50 also gives efficient, economical protection to engines and compressors.



The Duomeens are being used successfully to combat corrosion in refined product lines. Tankers are also being protected by these strongly cationic corrosion inhibiting chemicals.

More information regarding Armour Chemicals for these applications is available. Check "C" in the coupon.

Where Armour Chemicals for oil production will work tomorrow

Drilling muds. A relatively new Armour Chemical—Ethomeen S/12—is currently being tested as an emulsifier in drilling muds.

Acidizing and fracturing additives. It has been discovered that certain Arquads will form acid emulsions. The Arquads are used as emulsifiers in acid kerosene jets. They also control silicide swelling. In thickened oils they increase sand suspension. Test results show that extra corrosion protection for trucks and the tubing can be provided by the Arquads.

Water coning. Water production from coned wells has been reduced in a field test in Southern Louisiana by injecting two Armour surfactants in a water system. The treatment, based on laboratory work conducted by Dr. Alan S. Michaels of M.I.T. is also being field tested in other sections of the country to improve oil production.

Test and evaluate Armour's Chemicals for oil production. Our experienced oil chemists will help you determine the right chemical for your special problem. Send coupon—or call—Armour today!

NEWS NOTES

Houston. A new technique, showing the presence of hydrocarbons in thin sand beds and shaly sands normally by-passed by standard logging techniques, was discussed in a paper titled "Reversed Wetting Logging" at the recent S.P.E. meeting. The technique utilizes the hydrophobic-cationic characteristics of surfactants such as Armac® CD-50.

•

Tulsa. The Arquads®, quaternary ammonium chlorides, have now been completely cleared of being catalyst contaminants by at least three major refiners in the Southwest. There had been a tendency to class these excellent bactericides-corrosion inhibitors with chlorinated solvents.

•

Southeast Oklahoma. A new series of ethoxylated quaternary ammonium chlorides—the Ethoquads®—are showing promise for increasing injectivity here in field tests.

•

Hobbs, New Mexico. Clarification of injection water for secondary oil recovery is now being obtained through the addition of 0.1 pound of Arquad per ton of solids to be flocculated.

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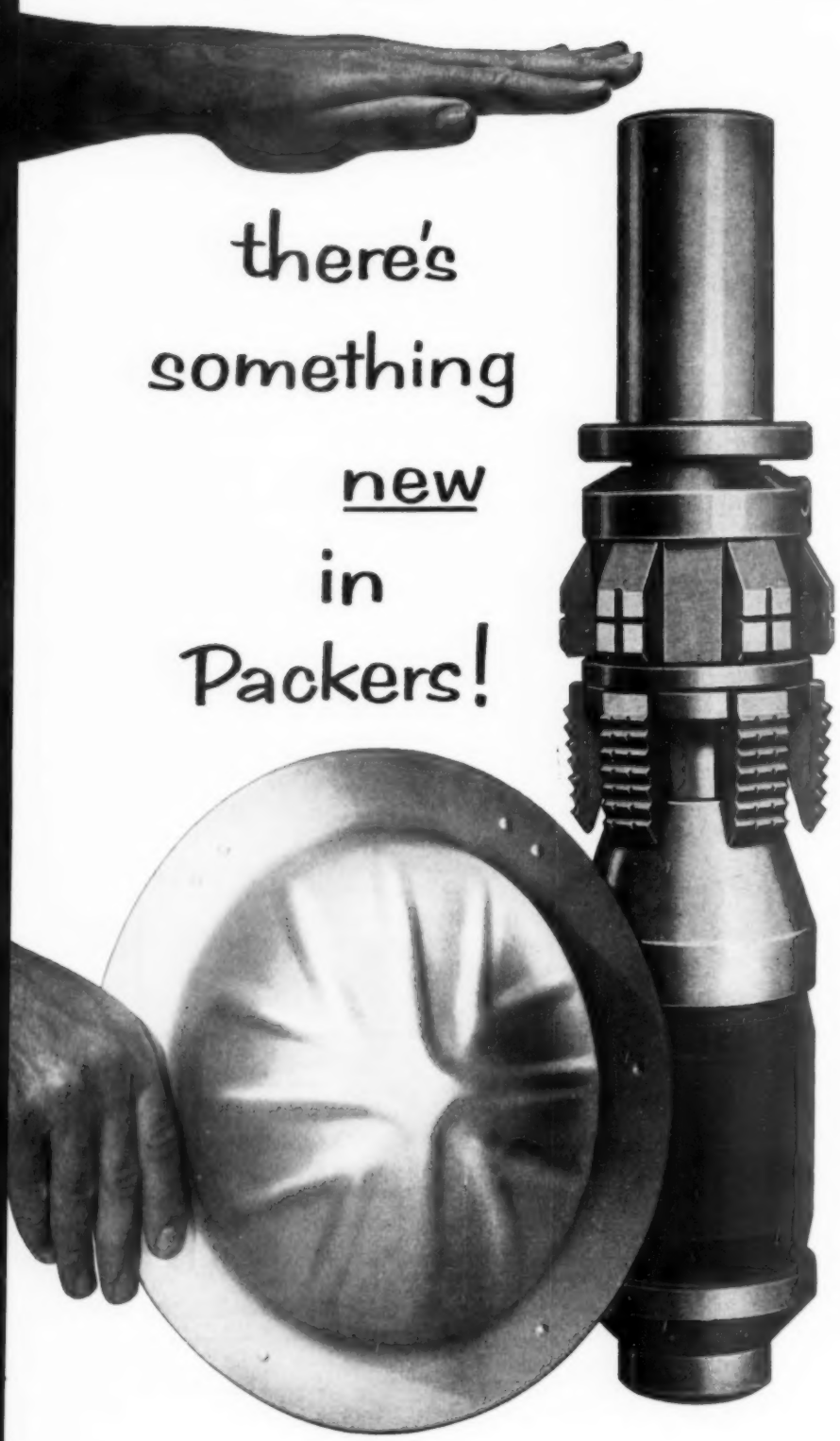

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Where there is a need... Baker shows the way. Recognizing a need for an economical, retrievable and yet dependable packer for water flooding and other pressuring applications in shallow or low fluid wells, Baker engineers have come up with the new Model "A" Tension Packer.

Compact design makes the big difference in this new packer. Imagine the ease of shipping, storing and handling a packer less than 30″ long. Its size is deceptive, for it contains many field-tested features of Baker retrievable squeeze tools.

For example, there's a "full bore" to permit the passage of instruments through and below the packer; a proven packing element that assures positive pack-off; and *rocker-type slip units* that eliminate cumbersome drag springs, slip tie-links, and guide grooves. For simplicity of operation, there's the reliable J-Slot setting and release mechanism.

Get to know the Model "A" better. There *is* something new in packers, and your Baker man has all the facts. Call him for information on how the Baker Model "A" Tension Packer can solve *your* hook-wall packer needs, or write for Bulletin No. 334.

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Swan Hills: A Giant in the Making

Alberta's Swan Hills area may be developing into Canada's biggest field, in terms of recoverable reserves.

This view is supported by results of the past winter's drilling activity in the area. About 45 rigs were operating at the peak period, of which about half were in the area now shaping up as the field proper.

As a result of wildcat drilling, significant oil discoveries were recorded by Home Oil Co., Ltd., and associates; Imperial Oil Ltd.; the team of British American Oil Co., Ltd., and Pan American Petroleum Corp.; and Texaco Canada, Ltd. (PW—Mar.13 '59,p40).

Further drilling will determine how many of the recent important completions are field extensions and how many are new pool discoveries.

Some of the more significant discoveries posted in the area recently include:

- Imperial No. 16-31 Judy Creek, lsd 16-31-63-10w5.
- B. A.-Pan American No. 2-13 Sarah Lake, lsd 2-13-65-11w5.
- Texaco Canada No. 2-7 Swan Hills, lsd 2-7-69-8w5.
- Home et al No. 10-17 Swan Hills, lsd 10-17-68-10w5.

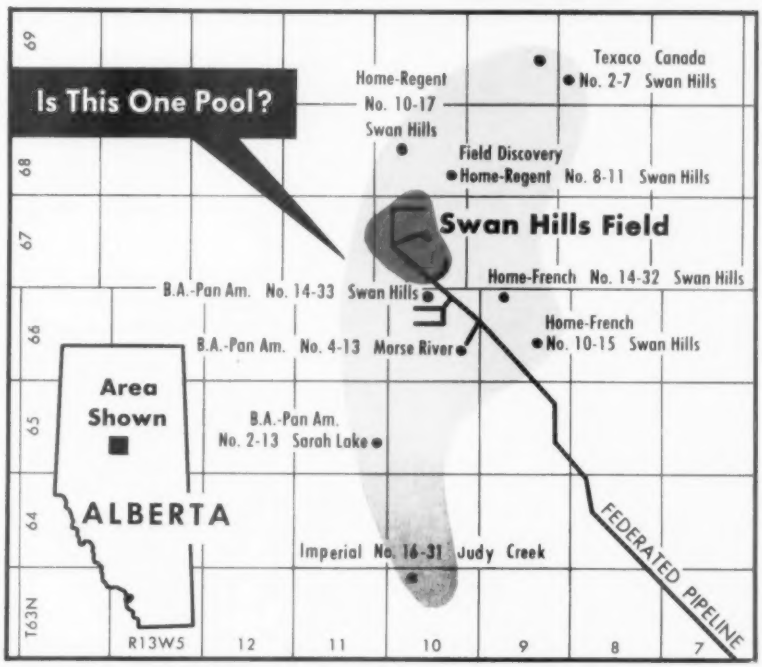
There also were important completions by the Home team and the B.A.-Pan Am team in the Morse River area, southeast of Swan Hills. And Shell Oil Co. of Canada, Ltd., completed No. 6-34 Swan Hills South, lsd 6-34-64-13w5. But this discovery is south of Virginia Hills, which has been shown not to be connected with Swan Hills.

If it develops that the recent completions are related, Swan Hills could have as much as 2-billion bbl. of recoverable reserves, according to one estimate.

In area, the field would be 36 mi. long, from north to south, and roughly 10 mi. wide, east to west. It would comprise 200,000 acres.

The 2-billion-bbl. estimate was made by Home's Alex Clark, vice-president in charge of exploration. In making this conjecture, which he labels as "strictly one man's opinion," Clark adds that, if favorable indications are borne out, "the Swan Hills field has the largest reserves in Canada, and could end up being second only to the East Texas field."

But this, Clark emphasizes, is all based on the assumption that the recent discoveries are related. Prior to this winter's drilling program, recoverable reserves for Swan Hills were estimated at 380-million bbl.



SCATTERED DISCOVERIES this past winter have similarities which indicate that they may eventually all be linked up in a giant pool comprising about 200,000 acres.

The Pembina Cardium pool, which ranks officially as Canada's largest field, has 4.2-billion bbl. of reserves. A report to the Borden Commission by two major Pembina operators last year, however, stated that only from 5% to 20% of Pembina's vast reserves are recoverable under primary drive. Waterflooding will increase ultimate recovery to 30%, or about 1¼-billion bbl., the report added.

Pembina comprises some 370,000 acres, of which about 300,000 are productive.

There are several similarities among the recent completions, all of which support the belief that the wells are part of the same pool.

Gravity of all the crude, for instance, is near 40. Depths have been in the same general range. And the formation involved (Beaverhill Lake of the Middle Devonian) has been the same.

But these indications are not conclusive. Back in 1957, there appeared to be a strong possibility that the Virginia Hills area would link up with Swan Hills as one field—but pressure data has since established that the fields are not related.

It's obvious that much more drilling is necessary before some of the answers can be had. All that can be said for sure now is that drilling to date has not disproved the optimistic views held by some.

Drilling is continuing in at least two areas, contrary to the usual seasonal interruption signaled when freeze-up ends and muskeg takes over.

Imperial used 32 tractors and bulldozers to cut about 20 mi. of roads through the wilderness and to clear locations for camps, drill sites, and helicopter landings. This enabled the company to get rigs and other equipment to drill sites near its Judy Creek discovery before spring breakup.

Imperial will drill at least five tests near its Judy Creek discovery, 18 mi. south of Swan Hills proper.

At last reports, the discovery flowed an undisclosed amount of 41-gravity crude on 30-minute test of the Beaverhill Lake at 8,310-95 ft.

Home Oil also plans to keep two rigs running on development drilling in Swan Hills. Interest in the main section of the field is held 50% by

Congrats and $25 to Billy D. Brown, T.P. Coal & Oil Co., P. O. Box 4067, Midland, Texas

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Regent Refining (Canada), Ltd., 31.25% by Home, which is operator, and 6.25% each by Geoil, Ltd., United Oils, Ltd., and Alminex, Ltd. French Petroleum Co., of Canada, and Kern County Land Co., of California, have joined the original group in recent lease and reservation purchases.

Home has carried out a heavy development program since bringing in the No. 8-11 Swan Hills field discovery in 1957. Two months ago, at the peak of the winter program, the company had nine rigs on development work in Swan Hills and two others on wildcat drilling in the Morse River reservation, directly southeast.

Drilling is not likely to continue, however, in the vicinity of the most recent successes in the area, 8 mi. northeast of the field.

Texaco Canada has completed three producers: No. 2-7 Swan Hills, lsd2-7-69-8w5; No. 10-14 Swan Hills, lsd 10-14-69-9w5; and No. 10-12 Swan Hills, lsd 10-12-69-9w5.

No. 2-7 was completed for 348 b/d of 42.8-gravity oil through 16/64-in. choke. Production is from 45 ft. of net pay in the Beaverhill Lake.

No. 10-14, 1¼ mi. west of No. 2-7, is reported to be a marginal producer, according to a company spokesman, but it is not expected to be abandoned.

The latest test—No. 10-12, 1½ mi. southeast of No. 10-14—recovered 2,800 ft. of 42-gravity oil from 80 ft. of net pay in the Beaverhill Lake at 7,050-170 ft.

Part of the acreage involved is held by Code Oil & Gas, Ltd., Consolidated Mic Mac Oils, Ltd., and Mayfair Oil & Gas Co.

Texaco increased its holdings in the area at the Apr. 2 sale of drilling reservations. In partnership with Mic Mac and Mayfair, the company acquired 8,960 acres for over $1-million, held 70% by Texaco, 20% by Mic Mac, and 10% by Mayfair.

A company spokesman reports that drilling is not expected to be carried through the muskeg season, but that operations will definitely resume next fall.

Sarah Lake, some 10 mi. south of Swan Hills proper, is another still-busy area.

Sarah Lake is roughly midway between Swan Hills and Judy Creek. It sprang into prominence with completion of the B.A.-Pan Am No. 2-13 Sarah Lake, lsd 2-13-65-11w5. The discovery flowed at the rate of 695 b/d on 2¾-hour drillstem test of the Swan Hills member of the Beaverhill Lake. The well is located on a 92,160-

acre reservation held jointly by B.A. and Pan Am.

Two other discoveries chalked up by the team in this reservation are the No. 4-13 Morse River, lsd 4-13-66-10w5, and the No. 1-A Swan Hills, lsd 14-33-66-10w5.

A British American spokesman says that an even dozen tests have been drilled, or are being drilled, as part of this season's program.

Other important extensions have been made north of Swan Hills and to the east and southeast of the field.

Home et al No. 10-17, lsd 10-17-68-10w5, was completed as a 3-mi. north extension of the field in late February, giving the field an indicated length of 13 mi., north to south.

Home-French No. 14-32 Morse River, lsd 14-32-66-9w5, is a 4-mi. easterly extension, and the Home-French No. 10-15 Morse River, lsd 10-15-66-9w5, southeast of No. 14-32, is another 4-mi. extension.

Home's Clark says of the latter two tests: "These may not be completed until next winter, but we know they are producers."

There were only seven wells, in Swan Hills field, including the No. 8-11 discovery, when the Home team began its development program with freeze-up last fall. There are more than four times as many wells now.

Home reports that, on production tests, the team's Swan Hills wells have ranged in production from 600 b/d to 1,200 b/d through chokes ranging from 20/64 in. to 25/64 in.

Net pay through this area varies from 6 ft. to about 170 ft., and gross thickness of the reef varies from 110 ft. to 395 ft.

The Alberta Conservation Board has issued a temporary 160-acre spacing order for the field. But Home Oil has been carrying out development on a 320-acre basis.

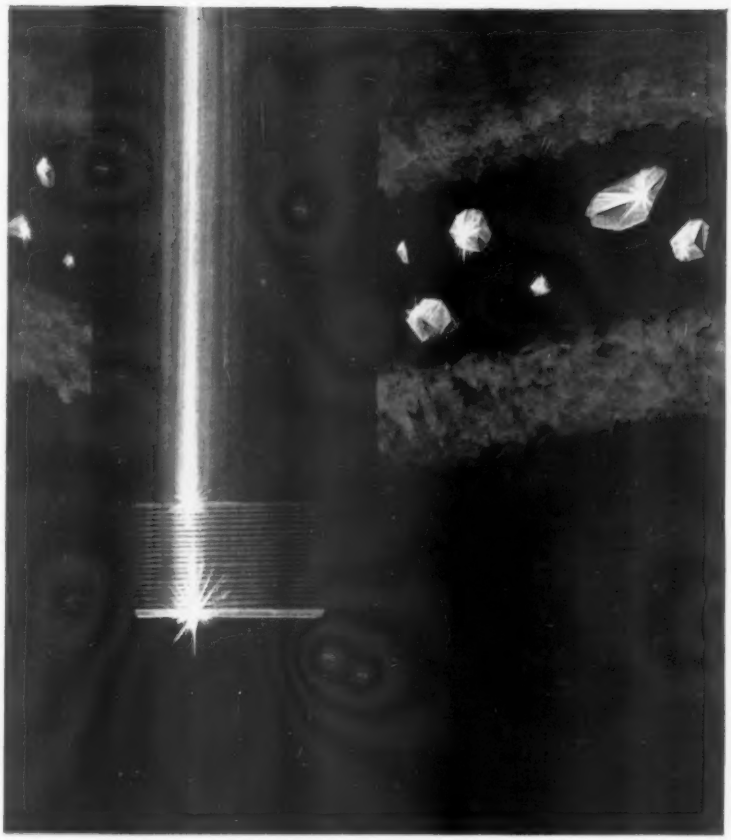
Crude from the area began moving to market early this year via the new $5.5-million Federated Pipe Lines, Ltd., line to Edmonton.

Federated is owned jointly by Home Oil and Texaco Canada. It consists of 114.9 mi. of 10¾-in. pipe and 7.5 mi. of 12¾-in. pipe.

The line has an initial capacity of 20,000 b/d, which can be expanded to about 75,000 b/d by installation of pumping stations.

It was designed to serve the entire Swan Hills area, and will be extended to newly discovered production next fall.

Temporary lines reportedly have already been laid on the surface to pick up oil from the Sarah Lake and Judy Creek discoveries.



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In Louisiana . . .

Commission's Work Soars

Hearings before Louisiana's Dept. of Conservation are expected to hit a record high of 500 this year—more than twice the annual average for the past ten years.

Some 200 hearings either will have been conducted, or docketed, through May.

This is more than the full yearly total for four of the past ten years, and close to the annual total for the remainder—except for 1958, when 379 hearings were held. The average annual rate over the ten-year span was 233.

The chief reason for the current upswing apparently is the statewide spacing order issued in the summer of 1957.

That order—No. 29-E—requires the operators to seek a hearing within a year after drilling the first well in a field, or after four wells have been completed—whichever comes first.

The public hearing in such a case is concerned with the establishment of field rules and regulations, and the creation of drilling units in the field.

But its primary purpose is to regulate the spacing of wells prior to the establishment of special rules and regulations.

"Before that, we had too many fields that were overdrilled," explains Thomas Winfiele, chief engineer for the department. "By the time we got into it, it was too late in many instances to establish orderly spacing."

But hearings on special orders also count for much of the workload.

There are now some 460 Louisiana fields under order.

In addition to the basic well-spacing order, there can be dozens of special orders for just one field.

Activity, too, has increased. For example, the number of drilling permits issued by the department rose from 2,626 in 1949 to 4,786 in 1956.

The general decline of industry activity brought the permit rate down to 4,524 in 1957 and to 4,346 in 1958. The number of permits issued in the first quarter of this year, however, totaled 985, compared with 921 last year.

Streamlining of procedures has been one way the department has met the additional workload.

The department's budget jumped from $490,000 in the 1949-50 fiscal year to $735,000 in the 1950-51 fiscal year. Since then it has continued to rise gradually.

Currently, the department is operating a budget of $910,000 for the 1958-59 fiscal year, and is asking $976,000 for 1959-60.

Much of the increase has gone for regularly scheduled salary increases. The department has a total of 138 employes—122 in its Minerals Division, and 16 in the Geological Division.

There has been only a very nominal increase in personnel over the past ten years, according to a department spokesman.

Ashton J. Mouton, conservation commissioner, says efficiency has been increased in many ways. For example, he says, the department now receives a "suggested form of order" from the operators involved in a hearing. Once the department makes its decision, usually only a few minor changes in the suggested form are needed. This cuts down greatly on the amount of time required to prepare an order from scratch.

Also, if applications are not contested, they are processed administratively, without the need for hearings.

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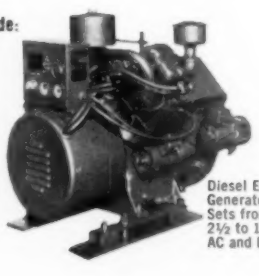


Diesel Electric Generator Sets from 2½ to 10 KW, AC and DC

Tidewater To Drill 60 More Holes

California's drilling industry received its biggest boost of the year last week with announcement by Tidewater Oil Co. that it plans to drill 60 new tests immediately.

The 60 ventures will consist of outposts, in-fills, and semi-exploratory tests in areas of heavy crude production.

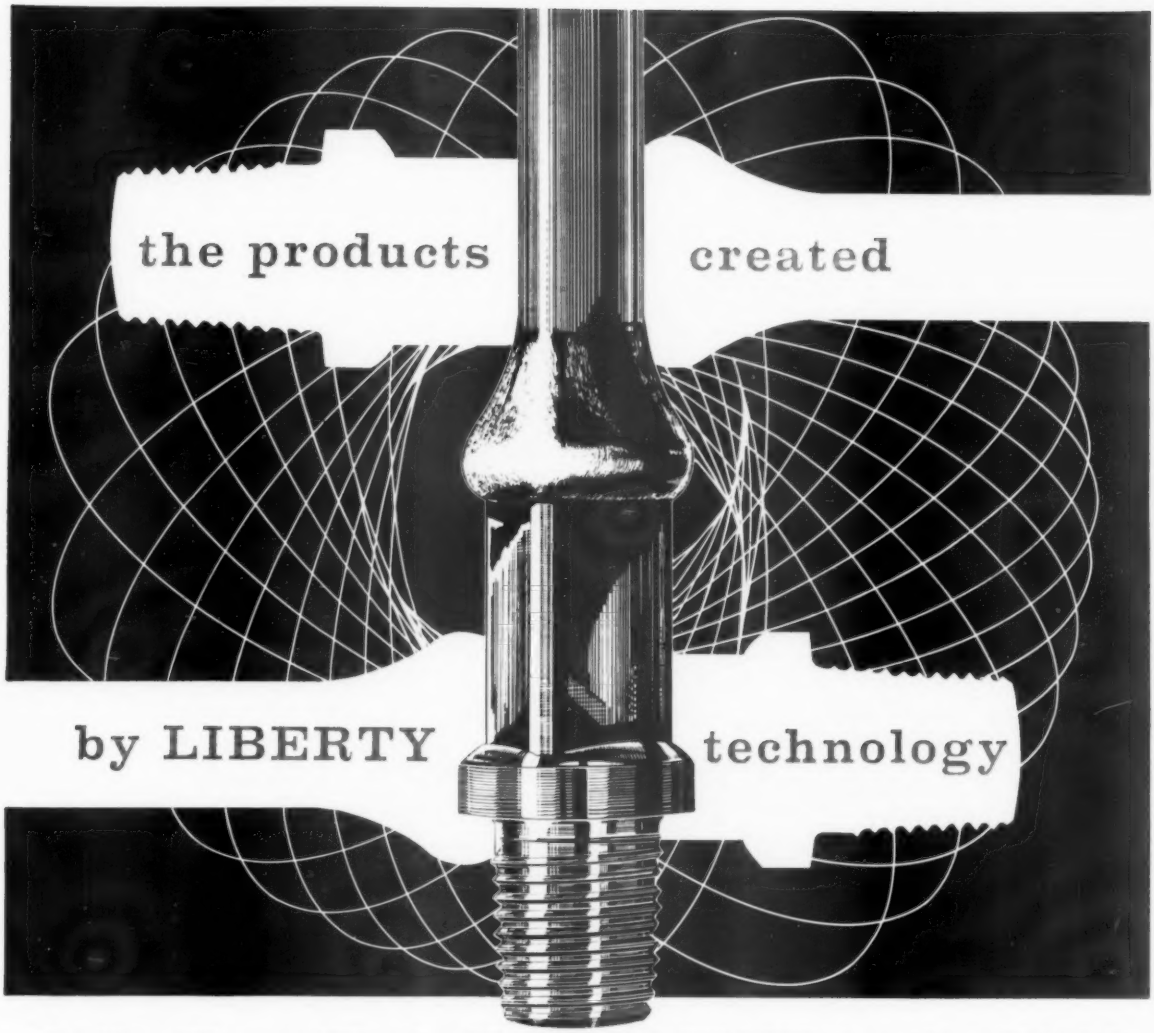
If results are satisfactory, the 60-hole program may serve as a forerunner of a much bigger drilling splurge for Tidewater.

The new program calls for the drilling of 8 holes at North Midway; 4 at McKittrick; 1 at Lost Hills; 1 at Midway; 30 at Kern River; 13 at Coalinga; and 3 at Poso Creek.

This drilling program is over and above the original budget. It reflects Tidewater's desire to develop as much of its own production as possible to supply its refining operations.

The company already has 1,460 wells, producing around 17,500 b/d, in the San Joaquin Valley. It is believed that the 60-test program will raise daily production from the valley by more than 10%.

Tidewater plans to use eight contract drilling rigs to carry out the new program.



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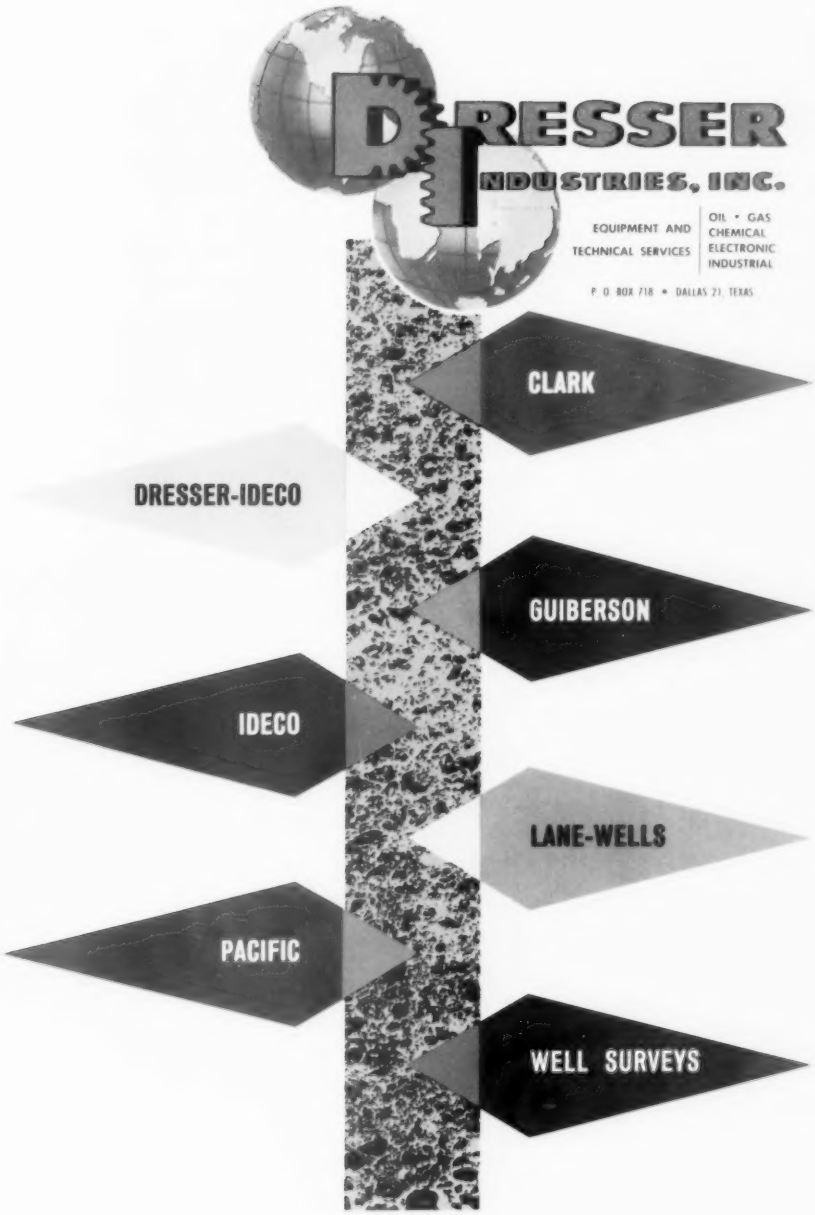
complete drilling rigs



The complex task of recovering oil and gas falls to the imaginative men and technical tools of production. At left is a visual concept of a Lane-Wells Koneshot® gun perforating a cross-section of casing — one of the most modern procedures in producing oil and gas — and a sketch indicating how the gun is lowered and fired at a specific depth. Dresser companies provide production equipment and technical services which are standards of comparison the world over.

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HYCALOG DIAMOND CORE BITS

WIRE LINE CORING RECOVERS MORE CORE... FASTER IN GULF AREA

High penetration rates were maintained on these seven wells... *with Hycalog diamond wire line coring bits*... and drill strings didn't have to be pulled for bit changes until coring was completed. Located in Webb, Matagorda, and Orange Counties, Texas, and St. Charles Parish, Louisiana, they are typical of coring jobs throughout the Gulf area.

SIZE BIT	NO. CORES CUT	FEET CUT	% RECOVERY	AVERAGE FT. HR
7⅝ x 1¾	10	129	100.	7.15
7⅝ x 1¾	12	130	97.	8.25
6¾ x 1¾	5	62	99.9	4.65
7⅝ x 1¾	17	155	80.	5.24
7⅝ x 1¾	37	465	95.5	4.2
7⅝ x 1¾	32	463	87.	6.9

Why not let Hycalog diamond core bits set a record on your next coring program? *And ask us about Hycalog* GAS CHRONO-FRAC *well logging services.*

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DIAMOND BITS DIAMOND CORING
WELL LOGGING CORE ANALYSIS

HOUSE AND SUPPLY BOAT is home base for unique exploration method as . . .

Atlantic 'Sniffs' for Offshore Oil

A boat-mounted electronic "nose" is being used by Atlantic Refining Co. to smell out and pinpoint offshore gas seeps in its hunt for oil.

The "nose" is a Beckman infrared nondispersive spectograph, which checks the sea water for methane gas.

The instrument is the same type as is used in many industrial plants to detect gas leaks and to determine gas concentration.

For Atlantic's use, the instrument was calibrated to detect methane gas specifically.

"Dead" oil—oil without gas—cannot be detected by this device, however.

Samples of sea water are scooped up by the boat as it moves back and forth across the exploration area. The device then analyzes the samples for methane content.

The escaping gas from the oil and/or gas reservoir rises to the surface and impregnates the surrounding water.

As a continuous stream of water is pumped aboard, dissolved air and gas is separated from the water, dried, and analyzed automatically by the "nose."

The reference gas in the detector reference cell and the sample gas in the sample cell absorb unequal amounts of infrared radiation. This causes unequal pressure on the sides of the detector and a diaphragm-condenser, says Atlantic.

The imbalance between reference and sample absorption and pressure causes a change in the signal transmitted to the recorder pen, which plots this action on a continuous chart.

The boat follows a zig-zag course to compensate for currents that might carry the methane gas away from the actual seep.

Once evidence of a seep is detected, the boat closes in on the area and uses an encircling maneuver to pinpoint the actual location of the seep.

The device is powerful enough to locate seeps leaking as little as 0.5 cu. ft. gas per hour, even in strong currents.

Atlantic officials do not accept the existence of a seep unless it can be located in the same place at least a week later.

This double testing guards against the possibility of mistaking a seep for marsh gas that might have been carried into the bay.

Because the survey boat uses navigational radar, it is relatively simple to plot the exact spot of the seep on a map.

The boat is always represented as the exact center on the radar screen. Thus, by placing a transparent map overlay on the screen, the exact location of the seep can be plotted in relation to the shoreline.

Another benefit derived from the use of the navigational radar is that it gives the boat a large operating area. Atlantic "sniffer" operations range from the shallow bays close to shore to as much as 30 mi. out.

Virtually any type and size boat can be used. The usual guiding factor is the distance from shore at which the boat will operate.

When Atlantic was first testing this method of petroleum prospecting, the company used a small, 22-ft., flat-

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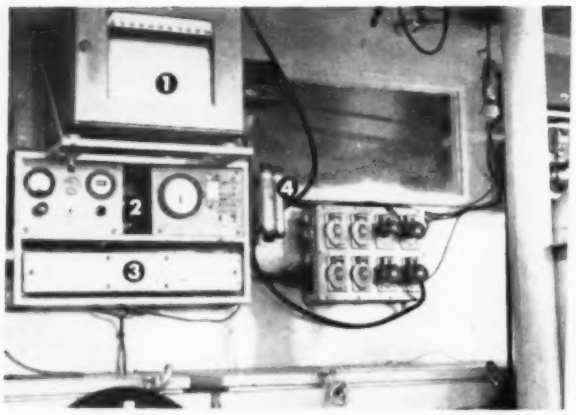

SEEP DETECTION UNIT consists of (1) recorder, (2) controls, (3) infrared analyzer, and (4) the air and gas driers.

MAC III, equipped with radar and ship-to-shore radio, ranges as far as 30 mi. offshore in hunting gas seeps.

bottomed barge, powered by an outboard motor.

This type of boat, says Atlantic, is perfect for shallow-water work in the sheltered bays.

For the more far-reaching operations, a bigger boat is used, mainly as a safeguard against rough water.

The detection device offers no problem on either size boat, since the separating and analyzing units combined take up about the same space as an office desk.

Atlantic has found that its method provides a very cheap and fast "first look" at the oil and gas possibilities of vast virgin exploratory areas.

The speed of the operation, according to Atlantic, is limited mainly by the speed of the boat.

Surveys have been run with the boat traveling as fast as 12 knots.

As far as costs are concerned, Atlantic points out that one of the surveys covered 4-million acres of water at a cost of about 2¢ per acre, compared with seismic reconnaissance grid costs as high as 75¢ per acre.

At last report, Atlantic had made five major surveys, covering a total of tens of millions of acres, as well as several minor ones.

Surveys have been made along the Texas Gulf Coast, in Venezuela's Lake Maracaibo, and in the shallow waters along the north coast of Cuba, just to mention a few.

The company has sold its original barge, the aptly-named Phydeaux.

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For independents . . .

Waterfloods Are Key to Reserves

With crude reserves becoming ever more difficult and expensive to locate, the small operator will rely increasingly on secondary recovery to get more production, says Pat Murta, Tulsa independent.

Murta, of Winona Oil Co. of Delaware, adds that the independent has been forced into secondary recovery gradually because of (1) the long payout periods for primary reserves, caused by prorating; (2) the high cost of exploration; and (3) the difficulty of finding any "decent" reserves by primary drilling at any cost.

The Tulsa oil man adds, "When I say 'secondary recovery,' I mean, primarily, waterflooding—which, at present, is the most effective method within the economic capabilities of the independent producer."

Murta says secondary recovery programs for most small-to-medium-size companies have gone through two phases: (1) secondary development of their own properties; and (2) active search for outside waterflood prospects.

In the first phase, Murta says, management was introduced for the first time to "that wonderful corporate tool—economic analysis."

He explains that management evaluated reservoir characteristics, core analyses, cumulative production figures, number of acres, and similar data, to determine the payout that could be expected from every dollar spent on a secondary project.

Management also learned that the payout time of the good secondary projects was relatively short, Murta adds, because of the production peaks that were developed.

The second phase in the evolution of secondary programs—the active search for waterflood prospects outside of the company's own leases—has been in effect for most medium-sized companies for some time, Murta says.

With attractive waterflood prospects disappearing, it has become necessary for the companies to become more efficient in their operations, Murta adds. Different companies have done this in various ways.

The primary methods used are: (1) cut capital costs through slim-hole drilling; (2) tighten cost control; and (3) accelerate operations.

Of these, he says, the third method seems to lend itself most to successful waterflooding.

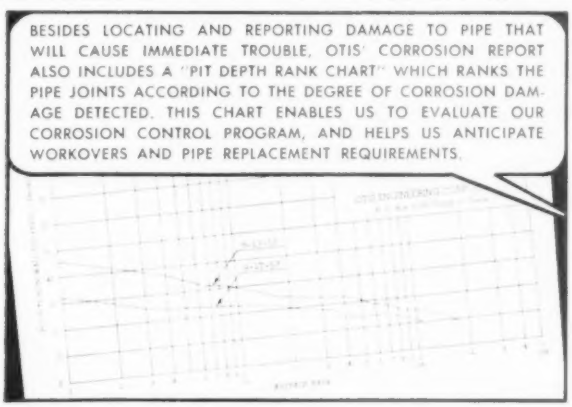
Murta says a comparison of two waterfloods shows that one company increased profits by 40¢ a bbl. simply by producing all of the oil in three years, against eight years in the second property.

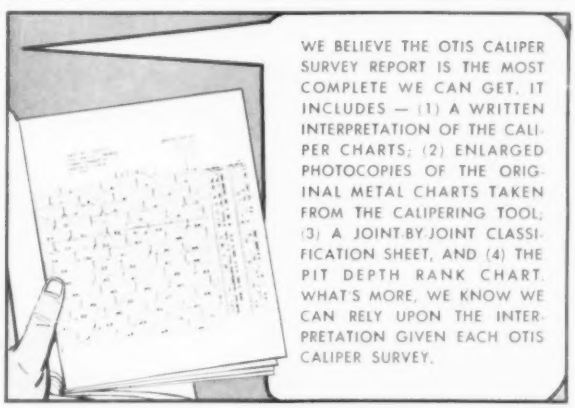
It seems certain, Murta predicts, that companies will work toward high-volume, short-time secondary projects as the most efficient type of operation.

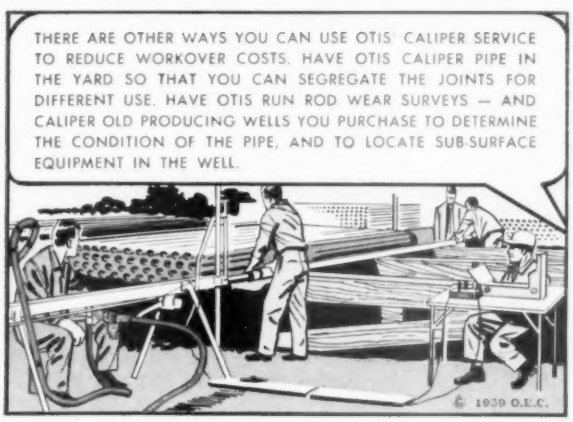
Among other conclusions that Murta suggests:

- More efficient methods are being evolved to enable the small company to look at "thinner" prospects.
- The small company has been made increasingly aware of the tool of economic analysis as applied to current and future planning.
- Keen competition will lead to more efficiency in secondary projects, and to other types of secondary recovery, such as in situ combustion.

The Tulsa independent discussed these views at this week's meeting in Amarillo, Tex., of the American Petroleum Institute's Mid-Continent District, Division of Production.


BESIDES LOCATING AND REPORTING DAMAGE TO PIPE THAT WILL CAUSE IMMEDIATE TROUBLE, OTIS' CORROSION REPORT ALSO INCLUDES A "PIT DEPTH RANK CHART" WHICH RANKS THE PIPE JOINTS ACCORDING TO THE DEGREE OF CORROSION DAMAGE DETECTED. THIS CHART ENABLES US TO EVALUATE OUR CORROSION CONTROL PROGRAM, AND HELPS US ANTICIPATE WORKOVERS AND PIPE REPLACEMENT REQUIREMENTS.


WE BELIEVE THE OTIS CALIPER SURVEY REPORT IS THE MOST COMPLETE WE CAN GET. IT INCLUDES — (1) A WRITTEN INTERPRETATION OF THE CALIPER CHARTS; (2) ENLARGED PHOTOCOPIES OF THE ORIGINAL METAL CHARTS TAKEN FROM THE CALIPERING TOOL; (3) A JOINT-BY-JOINT CLASSIFICATION SHEET, AND (4) THE PIT DEPTH RANK CHART. WHAT'S MORE, WE KNOW WE CAN RELY UPON THE INTERPRETATION GIVEN EACH OTIS CALIPER SURVEY.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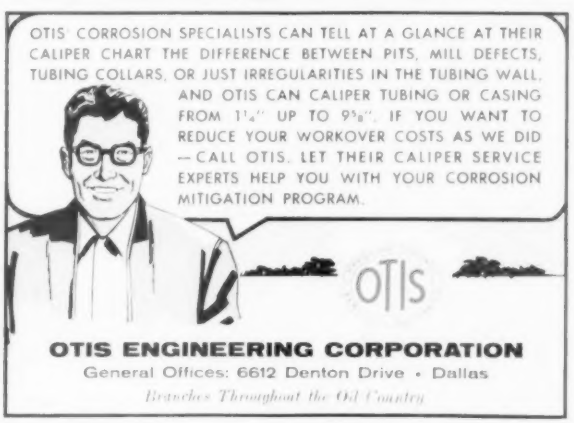
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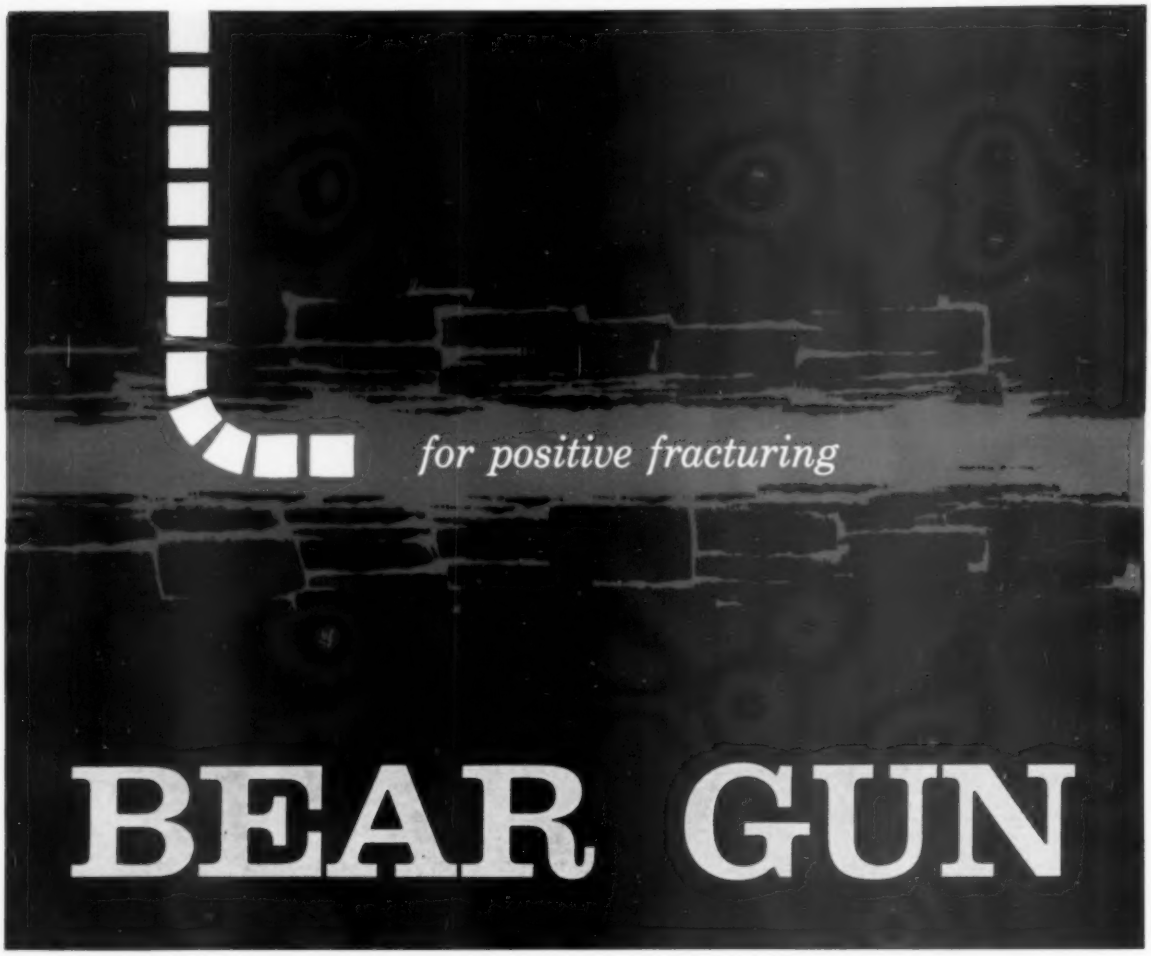

116 Barrels Per Day From A "Dry Hole"

Here's typical results one Oklahoma operator got with the Welex Bear Gun after cleaning out an abandoned well, previously perforated unsuccessfully with bullets. Fracturing with two shots from the Bear Gun turned the "dry hole" into a 116 barrels per day producer.

This is just one of hundreds of wells which have been fractured successfully by the Welex Bear Gun—often after other types of fracturing fail.

Utilizing the projectile-type method of fracturing, the Welex Bear Gun propels its missile at about 4,000 feet per second straight down the hole. At the desired depth a deflector turns the projectile 90 degrees into the formation. The missile penetrates the casing, without casing damage, and drives several feet through the cement deep into the formation, resulting in extensive and positive fracturing and fissuring every time.

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In the Anadarko Basin:

Humble Stops Lost Circulation

Preventive steps against lost circulation in Anadarko Basin drilling have cut drilling rig days by one-fourth and mud costs by half.

The application of lost circulation prevention measures during the drilling of seven wells in Hansford County, in the Texas Panhandle portion of the Basin, resulted in total rig-days being cut 25.2%, and mud costs 53.5% on a per-foot-drilled basis.

The combination of subnormal pressures and incipient fractures found in the Anadarko Basin makes the area particularly susceptible to lost circulation.

In this area, says John R. Eckel, of Humble Oil & Refining Co., bottom-hole pressures in permeable zones are generally subnormal, but the gradients increase with depth, and movement toward the east.

A fairly thick salt section is found in the Leonard, he says, with several massive shale sections, dolomite, and limes, as well as several potential pay zones to be drilled above the Mississippian.

The shales are generally unstable, and sloughing has been a major drilling problem. Many of the formations also are fractured, particularly the Wolfcamp, says Eckel.

Eckel says the average permeability of the Morrow sands (a popular pay in the area) is about 10 millidarcys. "Permeabilities this large do exist in fractures," he adds. "And inasmuch as many of the formations in the area contain incipient fractures, it appears certain that these fractures open and mud is lost."

Prevention is the best way of fighting lost circulation. The four most important considerations are hole size, mud properties, pipe handling, and breaking circulation.

The main goal is to reduce the pressures that cause fracturing and result in mud flow to the formation.

Drilling a 7⅞-in. hole with 4½-in. drill pipe, says Eckel, results in about ⅓ more clearance than in a 6¾-in. hole drilled with 3½-in. drill pipe.

With the larger hole size, he says, the annular pressure drops are reduced, and the effect of hole restrictions also is reduced.

Eckel says that reduced mud viscosity will reduce both the pumping pressure and the surge pressures.

As for pipe handling, Eckel says that limiting pipe-dropping speeds to one minute per stand, and stopping pipe "chasing," almost eliminate the pressure that is built up by fast-moving pipe in a "close clearance hole full of high-viscosity mud."

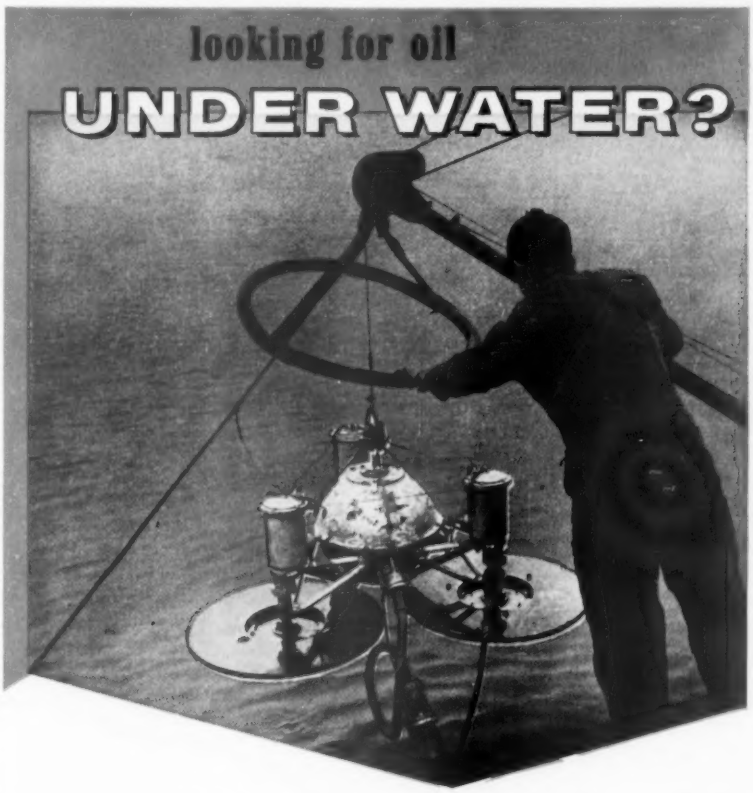
To minimize the pressure required to break circulation following a trip, Eckel says the circulation should be broken every 2,500 to 3,000 ft. while going in the hole.

Rotating the pipe to break up gels and bringing the pump up to speed slowly also will minimize the pressure on the formation, he adds.

If circulation is lost, however, and blind drilling can't be tolerated, the first step in regaining circulation is to determine the zone of loss.

It cannot be assumed that the loss zone is necessarily at the bottom, Eckel told this week's meeting of the American Petroleum Institute, Mid-Continent District, Division of Production.

In determining the loss zone, temperature surveys have proved quite satisfactory, he concluded.



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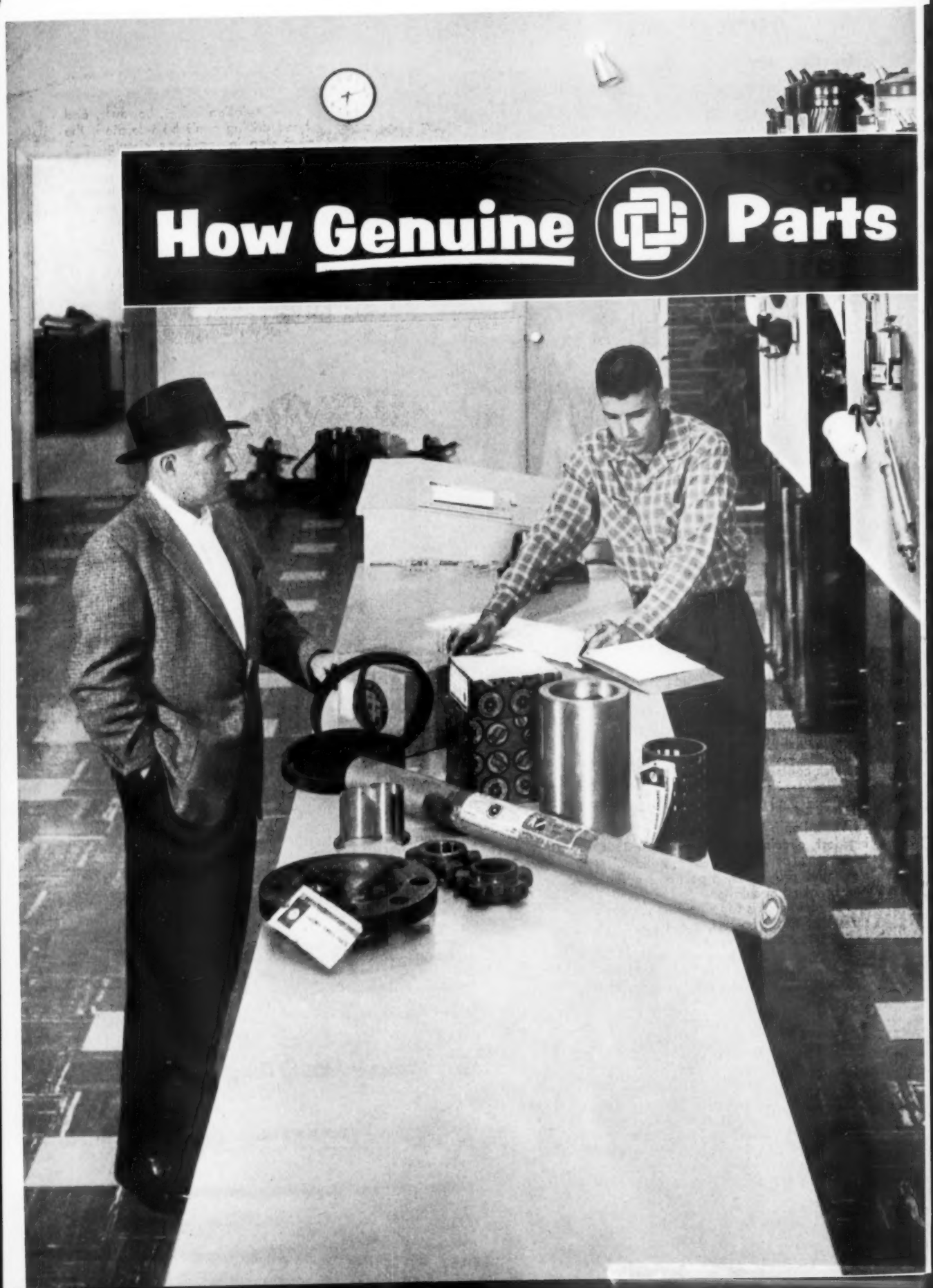
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These simple, convenient closures are equally desirable for gas line blow-off heads (see above), strainers, product line terminal manifolds, or any other service where pressure vessels must be opened for inspection, cleaning, repairing, connecting to a line, etc.

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MAY 16-22, 1959
Tulsa, Oklahoma

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What's New / IN PRODUCTION

California Drilling Contractor Quits

Another drilling contractor has dropped by the wayside in California.

BJ & M Drilling Co., of Los Angeles, announced last week that it was discontinuing drilling operations "for the time being." The company had been operating four medium-depth rigs.

A spot check last week showed 63 drilling contractors offering 206 rigs in California, with 104 of the rigs working.

Two years ago, 80 contractors were offering 249 rigs, of which 132 were working.

•

Foaming detergents can be used to restore "drowned" or "tired" gas wells to production, says the Bureau of Mines.

The bureau says that laboratory experiments, supplemented by numerous field tests, show that use of foam is an effective treatment for gas wells in which water accumulations in the well bore hinder or prevent production.

The bureau says additional information can be obtained from Bureau of Mines, Petroleum Experiment Station, Bartlesville, Okla.

New Rig Unveiled

A new portable shallow-hole rig that has no kelly or rotary table has been introduced by Western Micro Corp. Only two men are required to operate the electrically powered rig. Either air or fluid can be used as the circulating agent. The company says that the low initial and operating costs of the unit make it especially attractive for exploratory work.

•

A bill calling for mandatory competitive bidding in leasing rights to minerals on federal land has been introduced in the U.S. Senate.

Sen. John J. Williams (R., Del.) contends: "It is estimated that we are losing at least $20-million yearly as a result of our present policy of leasing these lands on a fixed-rate fee."

Under present law, mineral rights on public lands are leased at 50¢ per acre, unless oil deposits have been proven on them, in which case higher rates are obtained.

Sen. Williams contends that the "catch" to this situation is that the lands are not proved until after they have been leased.

The net effect of the existing law, he says, is to tie the government to the low lease price when surrounding lands are ranging $20 or $30 per acre because of the nearness of proved oil deposits.

•

Arizona has adopted new rules governing drilling and production.

As expected (PW—Dec.26'58,p23), the new rules set the basic well spacing pattern at 80 acres for oil wells, and 640 acres for gas.

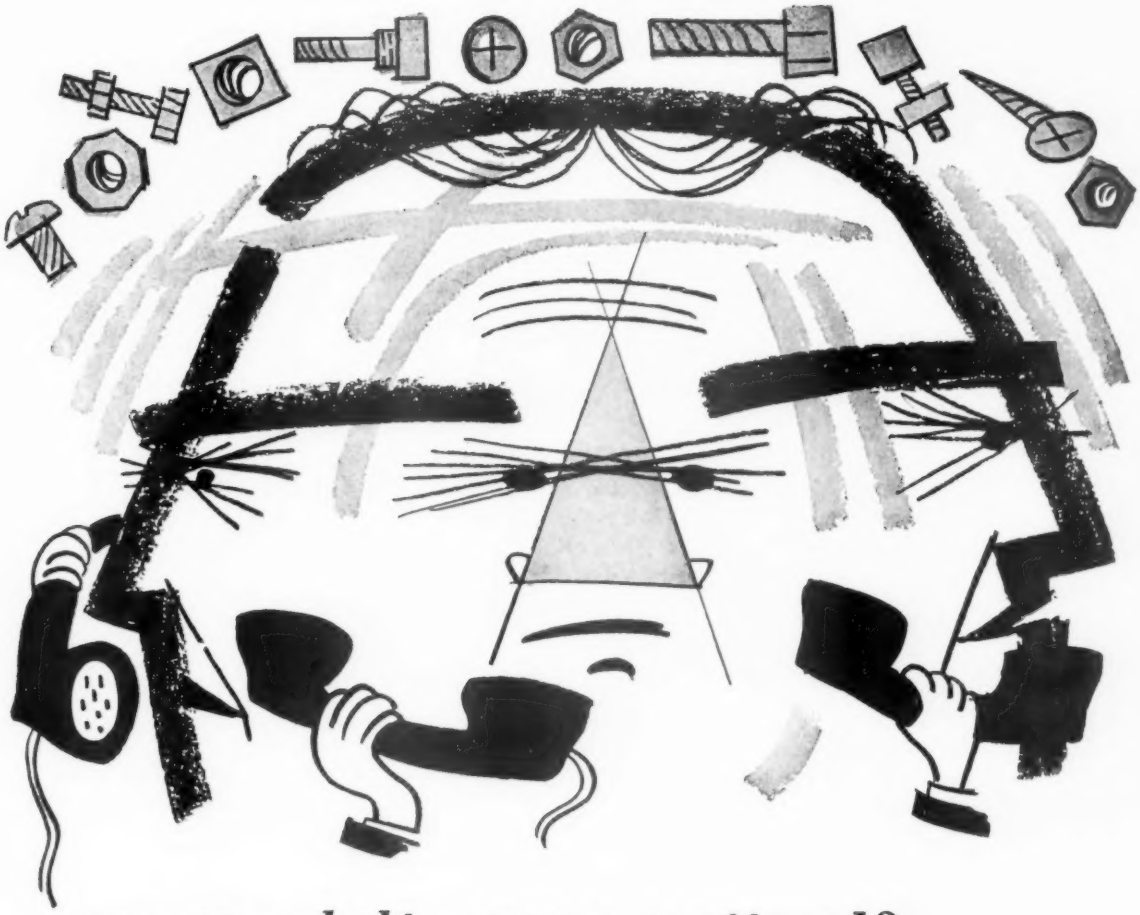
The allocation formula—when proration becomes necessary—will be based primarily on the recoverable oil in the acreage assigned to the well.

•

The Texas Supreme Court has ruled that 15-year term mineral royalty deeds can remain in effect even though there is no production at the time the lease expires.

Last week's decision reverses the lower courts in a case involving several tracts in San Patricio County. The opinion favors Midwest Oil Corp. and others in a dispute with Weldon O. Winsauer and others.

Commercial oil and gas production had been found on the property in question before the 15-year leases expired. But there was no actual production at the end of the 15-year



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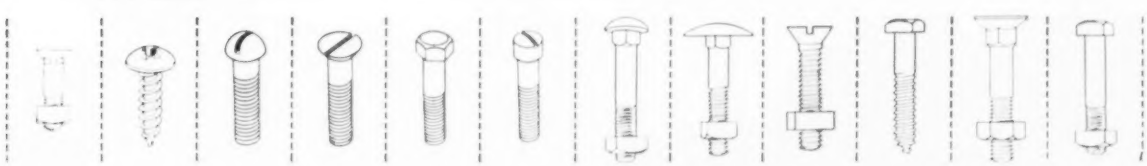

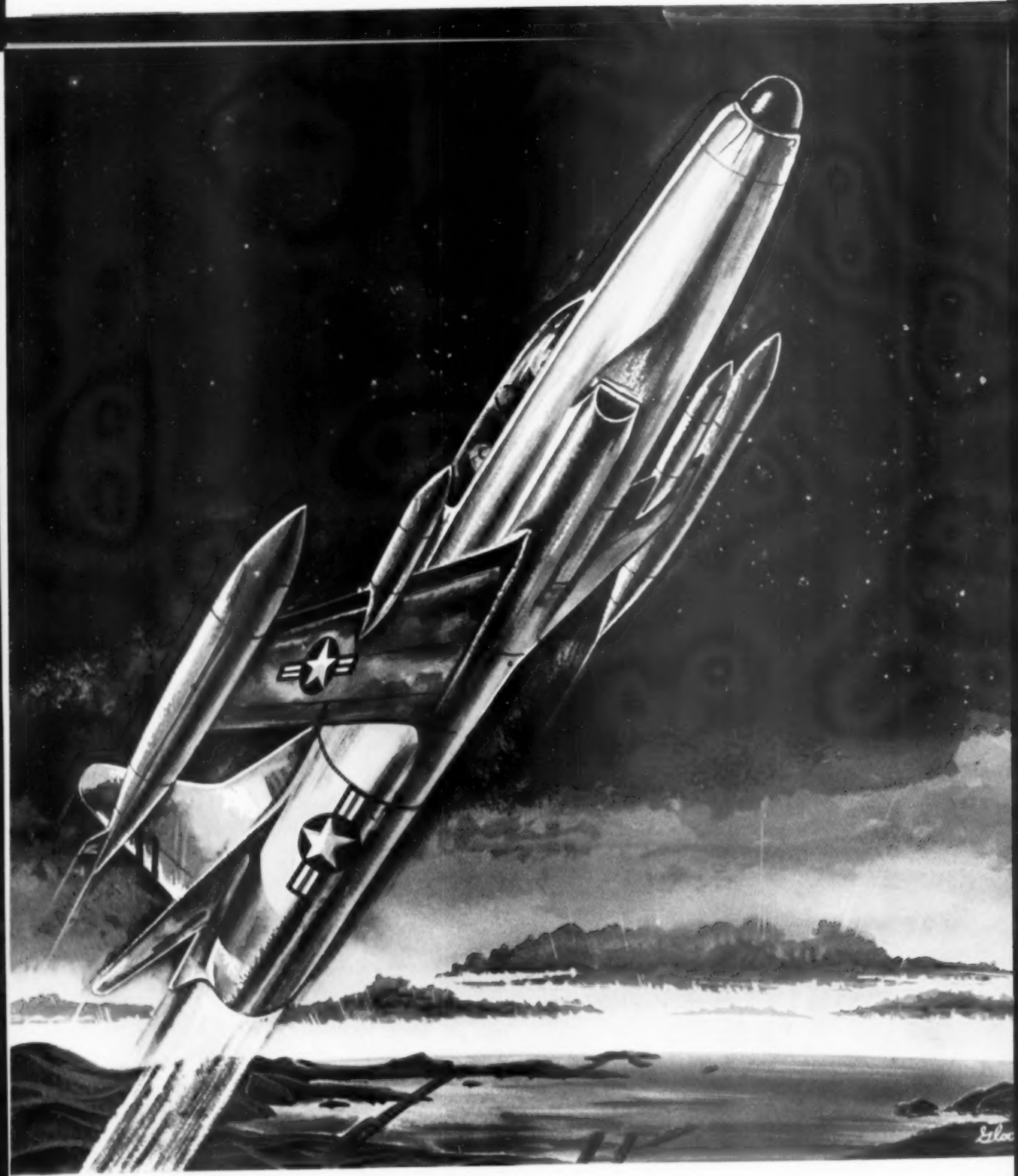

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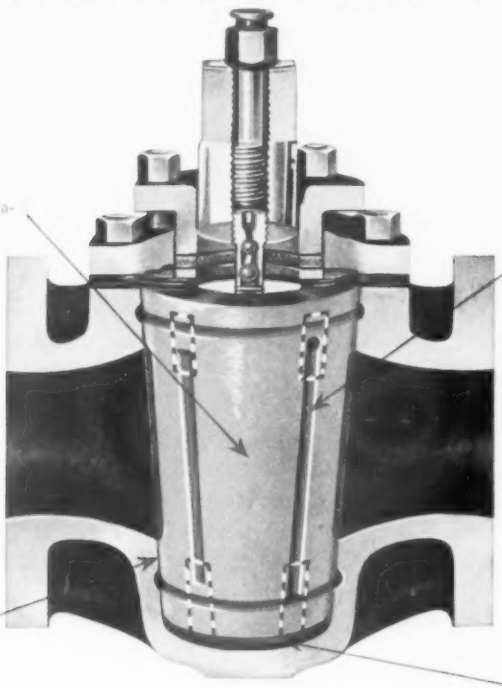
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This pipeline man wanted to know:

WILL A BELL SAVE ME MONEY?

At some point, most pipeliners take a long look at their ordinary equipment and the thought comes to mind: What about a helicopter? In the case of this Oklahoma construction company, the boss was looking, also, at a contract just signed . . one calling for a 30-inch gas line across 343 miles of mountains in Alabama, Tennessee and Kentucky.

What the company did was *charter* a Bell. From there on, discovery followed discovery. On the first day out, after spotting a broken-down bulldozer, the Bell flew in mechanics and parts for quick repair. Then it started shuttling spread-superintendents to work sites, helping engineers keep track of progress, jumping here and there to haul in a tool or bring out an ailing workman. Just its hovering presence gave the entire job the feel of being under control.

This Oklahoma company now uses a Bell on four other spreads, in such new-found ways as hunting out roads, ferrying survey crews, flying in inspectors and personnel. How about the value of a Bell in your own operation? Charter is a low-cost way to find out. We'll be glad to send you names of Charter Services in your area, along with additional information on Bell models and other convenient ways to try the Bell. Simply write Dept. 25D Bell Helicopter Corporation, Fort Worth, Texas.

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period because of mechanical difficulties and litigation, the court found.

•

Mobil Oil of Canada, Ltd., has applied for exploration licenses covering a 600,000-acre block centering on Sable Island, Nova Scotia.

Sable Island, the exposed part of an extensive easterly-trending shoal area about 100 mi. off the southeast coast of Nova Scotia, is essentially a sandbar 1 mi. wide and 23 mi. long.

A Mobil statement says geophysical studies made in recent years indicate the possible existence near the island of a basin with up to 15,000 ft. of sedimentary deposits.

The company's exploration of the area will be conducted during the coming year.

•

A new pilot fireflood will be started soon in West Central Texas.

The Texas Railroad Commission gave Lamret Oil & Gas Corp. permission to start the pilot project in the Amerada sand under portions of the company's A. H. Conner and H. Barnes leases, in Brown County Regular field.

•

The Texas Railroad Commission has granted 160-acre spacing for the 8,100-ft. Morrow sand pool, West Perryton field, Ochiltree County.

The small field (there are only four producers so far) is only the third area in the state to be assigned such wide spacing.

•

Oil- and gas-well cementing practices in the U.S. are detailed in a new book just published by the American Petroleum Institute.

The book also gives a brief treatment of oil-well cementing's history and chemistry.

Copies may be obtained from Division of Production, American Petroleum Institute, 300 Corrigan Tower Bldg., Dallas 1. Price is $5.

•

Core Laboratories, Inc., has assigned unrestricted ownership of a patented waterflood method to operators participating in Colorado's Adena J sand unitization project (PW—Jul.5'57,p19).

The Adena recovery technique, in which water is injected at the gas-oil interface, was developed by W. L. Horner, Core vice-president, after an engineering study of the field's unique down-dip recovery problems.

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Drilling Highlights

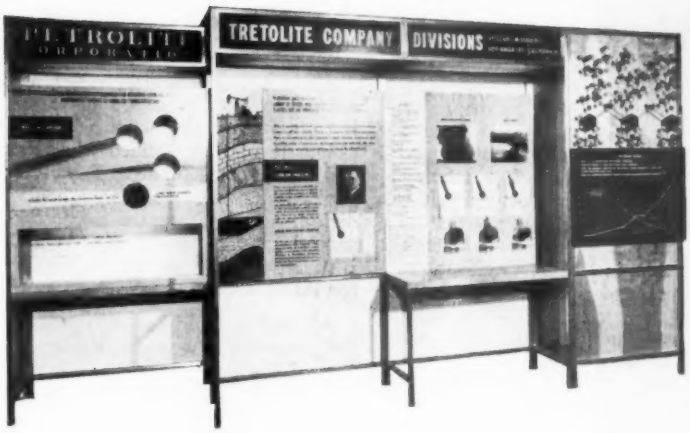
Oklahoma—Sinclair Oil & Gas Co. No. 1 Kuhn, section 6-28n-22w, Harper County, in North Buffalo field, was triply completed, with each of the zones being given discovery allowable status. The Lansing was perforated at 4,582-612 ft. to flow 192 b/d of 41-gravity oil through 22/64-in. choke, plus 97,000 cf/d of gas; the Kansas City at 5,216-26 ft. flowed 144 b/d of 42-gravity oil in 19 hours through 24/64-in. choke, with 1,675,000 cf/d of gas; and the Oswego at 5,423-36 ft. flowed 88 b/d of 39-gravity oil through 20/64-in. choke with 1,620,000 cf/d of gas. All three of the new producing zones are in the Pennsylvanian. The original field discovery produces from the Arbuckle.

East Texas—Pan American Petroleum Corp. No. 1 Giraud Gas Unit, George S. Young survey, 4 mi. southeast of Linden, Cass County, flowed an unestimated amount of gas and distillate through perforations at 9,864-74 ft. and 9,951-58 ft. in the Cotton Valley. The wildcat, which has touched off a lease flurry, also recovered some oil on drillstem test of the Buckner at 10,245-62 ft. and 10,278-83 ft. Nearest Cotton Valley production is in Waskom field, 40 mi. north.

New Mexico—Standard Oil Co. of Texas No. 12-5-1 Federal, section 5-31n-13w, San Juan County, flowed 167 bbl. of oil in 16 hours through 25/64-in. choke and perforations at 5,900-6,200 ft. in the Gallup. Nearest similar production is 6 mi. west, in Verde field.

Colorado—Lion Oil Co. No. 1 Retherford-Government, section 15-35n-20w, Montezuma County, was completed in two zones of the Paradox (Pennsylvanian) for 812 b/d through ½-in. choke and perforations at 5,862-72 ft. in the Bluff, and 192 b/d through ⅝-in. choke and perforations at 5,944-50 ft. in the Ismay. An upper zone of the Ismay flowed at the rate of 20 to 30 bbl. per hour on drillstem test at 5,901-38 ft., but was not perforated. The discovery is 1½ mi. east of Utah's Ismay field.

Montana—The Texas Co. No. 1 Guelff, section 4-15n-54e, Dawson County, dual zone discovery 4½ mi. northwest of Glendive field, flowed 407 b/d of oil through 8/64-in. choke and perforations at 9,020-50 ft. in the Silurian, and pumped 108 b/d of oil and 125 b/d of water through perforations in the Red River (Ordovician).



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DEPT/Processing & Petrochemicals

Refiners' Computer Experience Mounts

Computers have made great strides in recent years. But not all processors agree on the scope of their application to refinery operation, or on the type and size best fitted for that purpose.

This fact emerged clearly at the recent computer conference of the Western Petroleum Refiners Assn., when representatives of several oil companies presented their views about electronic computers in operation in their plants, or being contemplated for early installation.

Champlin Oil & Refining Co. has been using an electronic computer at its Enid (Okla.) refinery for economic evaluation of seasonal changes that affect operating conditions.

A change in operation of one particular unit, to fit seasonal demand, was found to modify the economy of the whole processing structure. If one such change is made, Champlin found, it is necessary to rework the material and economic balance of the entire refinery.

Pure Oil Co. has installed one central computer in Chicago for refinery simulation, to effect improvements in the simultaneous operation of four refineries, widely separated from each other and from the location of the computer.

The simulation program is an accurate and complete mathematical and logical representation of a refinery, programmed into the computer. It is able to handle variations in feed stock quality, in yields realization, in tankage situation, in product specifications, in product and operation costs, and so on.

The simulation program is not rigidly bound to any plant makeup. On the contrary, it can be used to predict how operations will be affected by any minor or major refinery changes.

Data is exchanged between the refineries and the computer center by teletype.

Standard Oil Co. (Ohio) is working on a cooperative program of computer control development with the equipment manufacturer. It is carefully weighing the pros and cons of electronic versus human control.

R. H. Jones of Sohio points out the difficulty of applying a computer, which is lightning-fast in its work, to an installation originally designed to be handled by humans—who are limited in their perception and slow in their response, and whose reactions vary widely.

Sohio has used digital and analog computers for a variety of problems, but not yet for actual control of processing. It has not decided what type and class of computer should be selected for that purpose: analog, digital or hybrid; special purpose or general purpose; or combinations. It is studying the problem with Thompson-Ramo Wooldridge Products Corp.

All refiners agree that careful programming is an essential condition of the entire application.

Since a computer is a mathematically exact device, which has no inherent ability to exercise judgment, the proper instructions must be provided.

Champlin depended upon the computer manufacturer to do the major portion of its programming for the initial problem. The machine installed was an Alwac computer, made by El-Tronics, Inc. Input to the computer was either by IBM cards read at the rate of 100 cards per minute, or by flexowriter input. Output was by punch card at the same rate, or by flexowriter at the rate of ten characters per second.

Champlin's first problem was to adjust the over-all operating plan economically, to balance fluctuating marketing requirements. Each stock making up the gasoline pool was evaluated in terms of its blending value, its availability, its cost, and so on. In addition, the computer had to take into account such factors as the quantity of natural gasoline or butane that would bring the total pool to the desired Reid vapor pressure, and the amount of tetraethyl lead required to bring the finished product to the required research octane rating.

For its refinery simulation computer, Pure Oil borrowed an expert to do its programming from its own Economic Analysis & Planning Dept., which has a pool of trained "mathematician-programmers" running the company's other computers.

The computer used for the original simulation program was an IBM 650. The program was prepared by applying a trial and error method to machine simulation of actual operations. Crude stills were loaded to capacity, an attempt was made to get the desired volume of finished products, intermediate stocks were charged to the capacity of the processing units, and inventories of critical stocks were

Mobil's New Coker Goes on Stream

This new 19,000 b/d delayed coking unit is on its initial run at Mobil Oil Co.'s Paulsboro (N.J.) refinery. Designed for the Socony subsidiary by the Lummus Co., the unit can produce 764 tons of coke per day, making it the "largest initial capacity coker ever built in the U.S."

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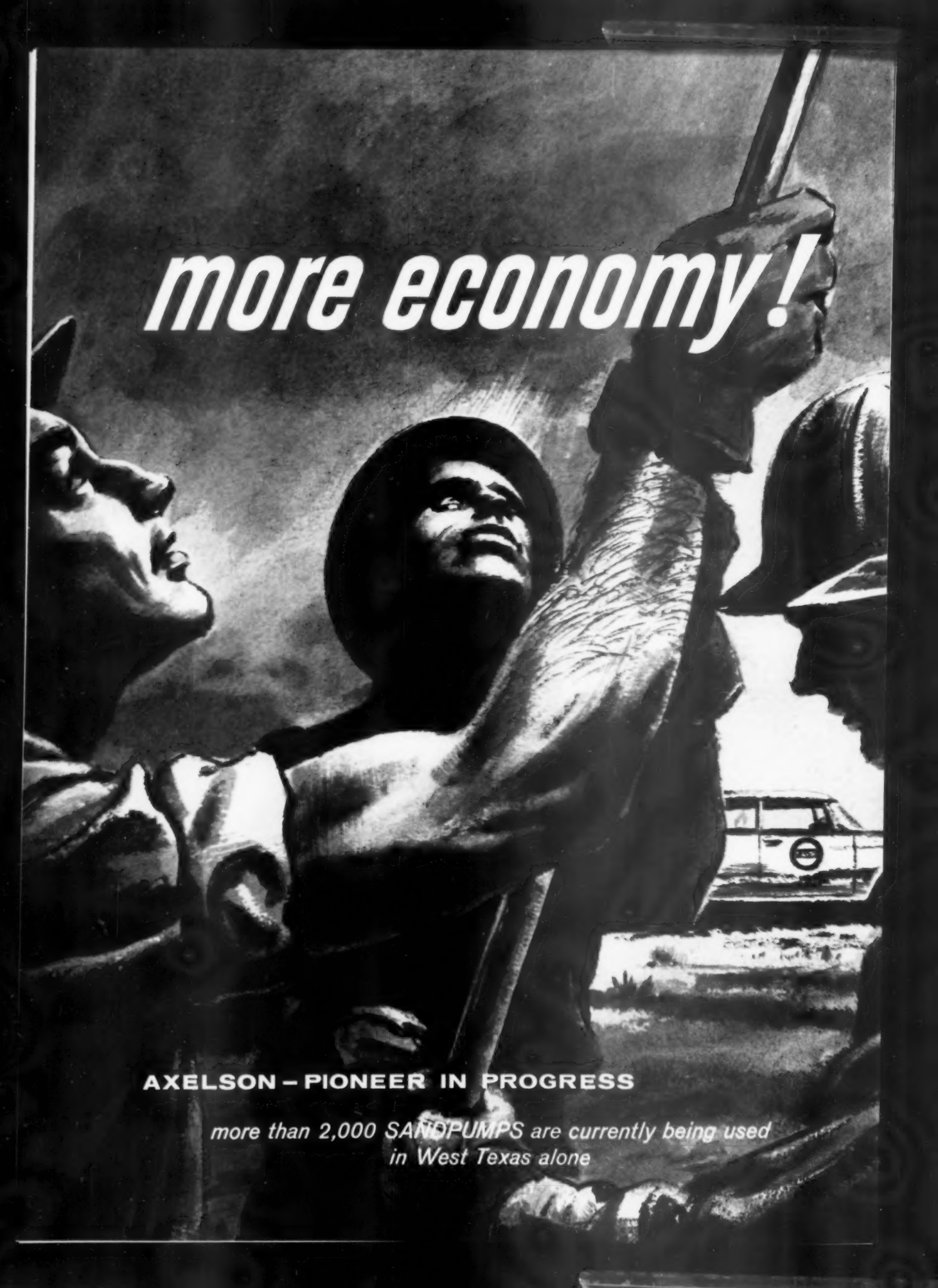
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AXELSON SAND PUMP

Axelson's traveling barrel rod liner SAND PUMP is ideal for sandy well conditions and other similar conditions where initial costs and maintenance expenses must be kept at a minimum. It is a metal-to-metal pump using premium parts, assuring longer runs and lower maintenance costs than are possible with an ordinary rag pump.

The simple design utilizes a small number of parts, making initial cost relatively low. The close working fit of the "stroke-through" plunger and duax liners keeps sand from working surfaces. This design also permits a washing action which aids in cutting down damage due to abrasive conditions.

The SAND PUMP uses one, two or three liners depending on the well depth or seal required. The long plunger connects directly to the bottom hold down unit and also serves as the pull tube. The overall length of the plunger is determined by the pumping stroke desired.

Your local Axelson representative will be happy to discuss possible SAND PUMP applications for your various well conditions.

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HUDSON SERVES THE URANIUM INDUSTRY

In Ontario, Canada, near the northern shore of Lake Huron, Hudson Engineering (Canada) Limited has recently completed the construction of a major uranium ore mining and milling project for Stanrock Uranium Mines, Limited. Located in the Blind River area, which contains the free world's largest reserve of uranium, the design quantity of 3,000 tons per day is being mined and milled, uranium oxide being the end product.

The experience of Hudson in design and construction for the oil, gas, chemical and mineral industries is available for any size project anywhere in the world.

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checked to see if they fell within the prescribed limits. If not, diversions were made, or the crude run was reduced, and another trial was made. This was automatically repeated until all controllable stocks were within bounds.

Sohio intends to experiment with the use of computers for actual control of refinery processes.

"To prepare the computer model," says Jones, "we must not ignore the fact that operators have built up many years of experience and carry with them numerous instructions and considerable knowledge. A computer, before it can accomplish an operator's task, must be supplied with all these instructions and knowledge." If the computer is expected to improve operations, he says, it must be given even better instructions.

There appears to be a trend among refiners towards larger, more powerful, more versatile computers.

Champlin replaced its original Alwac with a Univac Magnetic Amplifier Solid State computer, made by Remington Rand. Pure Oil found it necessary to install an IBM 705—to which it has gradually shifted all of its 650 programs.

Phillips Petroleum Co., which also started with a 650, has installed the even larger IBM 709, but is still using its 650.

One exception to the trend to larger computers is Cities Service. It favors the use of several smaller computers, with the possibility of adding more units if necessary. It uses three IBM 650s.

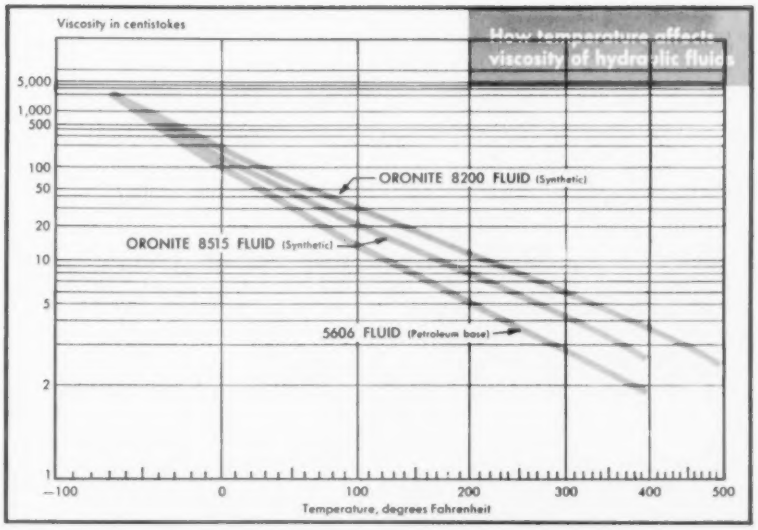
Changing to larger computers creates one major problem: the great expense of converting programs to fit the new machines.

Pure Oil, for example, indicates that a further conversion from the 705 to a new system would cost about a half-million dollars for reprogramming alone. Manufacturers are giving much thought to devices that would answer this criticism.

Further effort is necessary to improve the reliability of computers, says Jones of Sohio. Occasional failures can be expected, he says.

They may be mechanical, or they may be the more subtle failures similar to those that occur in your TV set, when the picture suddenly goes haywire, then, for no apparent reason, corrects itself.

In order to utilize a computer for control, "fail-safe" designs must be developed, either by duplicate circuits, or by mechanisms capable of detecting failures and correcting them instantaneously.



For supersonic aircraft:

Hydraulic Fluids Go Synthetic

Synthetic hydraulic fluids said to outperform present petroleum-base fluids under extreme high and low temperature conditions have been used successfully in supersonic bombers, according to Neal V. Furby, of California Research Corp., and J. S. McClure, of Oronite Chemical Co. Both are subsidiaries of Standard Oil Co. of California.

While the time-honored petroleum-base fluids command the lion's share of the total market, synthetic fluids now comprise a significant fraction.

These synthetic fluids possess high temperature-stability. Their change in viscosity over a temperature range from —65F to 400F is less pronounced than for present-day petroleum-base fluids (chart).

They also display exacting properties which supersonic hydraulic fluids must have, such as hydrolytic stability, antifoaming quality, safety against spontaneous ignition, storage stability, non-toxicity, and—especially—compatibility with other fluids and with materials of construction.

The new fluids use a disiloxane base, a version of the silicate esters. They have been named Oronite High Temperature Hydraulic Fluids 8515 and 8200.

They are made by combining a base stock of di- and polyalkoxylane with an oxidation-corrosion inhibitor and a viscosity index improver. The base stock is produced by reacting alcohol with silicon tetrachloride.

Fluid 8515 is said to meet military specification MIL-H-8446A for a non-petroleum-base aircraft hydraulic fluid. Oronite 8200 can be used at even higher temperatures, but has an adverse effect on elastomeric seals.

Due to the high cost of the ingredients entering into the making of the silicate esters, and the cut-and-try method used to meet specifications during the manufacturing process, these fluids are still very costly. A present cost of $25 per gal. is indicated for either fluid.

Oronite has added a new blending and packaging facility at its Oak Point (La.) plant for the 8515 and 8200 fluids.

Greatest care is necessary in the handling of the fluids during blending and drum-filling operations.

The filling room is air-conditioned to minimize moisture and dust contamination. Inner-coated drums are used. Before the drums are filled, they must be flushed with filtered fluid. The entire blending operation is blanketed with nitrogen.

So far, these fluids have been applied only to military uses. But their outstanding properties seem to point to many other applications.

Fluid 8515 is used in the Convair B-58 supersonic bomber "The Hustler," and in the rocket-powered X-15 built by North American.

California Research and Oronite engineers are pursuing their tests with these fluids for such uses as aircraft weapon lubricants, coolants for airborne electronic equipment, and heat-transfer media in industrial equipment.

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What's New
IN PROCESSING

The use of radioisotopes accounts for annual measurable savings of $11.6-million for petroleum refiners, according to a National Industrial Conference Board report released last week.

The study, performed under a contract from the Atomic Energy Commission, shows that the oil industry as a whole accounts for almost one-third of measurable savings resulting from industrial use of isotopes.

AEC noted that one large petroleum refiner, through use of radioisotopes and catalyst circulation meters, is able to produce $2-million worth more of gasoline annually with no increase in production costs.

•

Shell Development Co. is using a new research tool called a "shock tube" to study chemical reactions at extremely high temperatures and pressures.

Such studies have been difficult because earlier techniques were slow to heat and cool the reacting mixture. As a result, the key, high-temperature reactions were obscured.

The new tool uses a supersonic shock wave to produce high temperatures and pressures that last only one-millionth of a second, during which the reaction takes place. Results can be studied only by means of photographs of electronic instruments.

•

Carter Oil Co. is adding new LPG facilities at its Billings (Mont.) refinery.

New construction will include addition of a 560 b/d de-ethanizer tower to an HF alkylation unit now nearing completion; propane tank storage; and a five-spot car-loading rack with necessary pumping facilities to handle isobutane charge for the alky unit.

The Refinery Engineering Company, of Tulsa, will design, engineer, construct, and handle purchasing for the jobs. The company is also prime contractor on the alkylation unit and other major facilities going in at the Carter plant.

•

Standard Oil Co. (Ohio) has just begun construction of its new multi-million-dollar petrochemical plant for the manufacture of acrylonitrile.

The Lima plant, scheduled for completion early in 1960, will be the first

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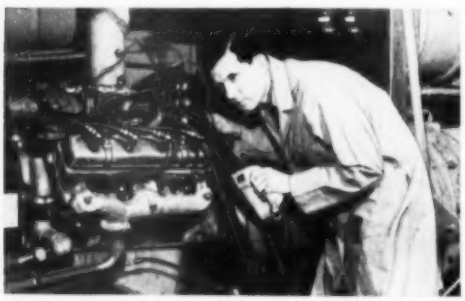
The story of Standard Oil's contributions to oil progress through research is told to the public in advertisements like this during the year.

When a boy asks "WHY?" ...anything can happen!

This scene can be duplicated thousands of times throughout the country. And as long as it goes on, America can be sure of continued progress. Here Bob Hansen (left) and two friends explore the mechanical wonders of an engine (1933 model). The two other boys are Tony Riccardi (center) and Bill Hess. They are all students at Niles Township High School, Skokie, Illinois.

Ever since Bob Hansen was old enough to hold a wrench, he has been tinkering with machines. Next year his repair shop on his driveway at home will disappear because Bob, an honor student, is going to college to study engineering.

Bob is one of thousands of American boys with a restless curiosity about things mechanical. What makes a clock tick? What makes a bicycle brake hold? What makes a car run? From such curiosity comes the mechanical progress that has helped to make America great.



The efficiency of gasoline and lubricants is improved constantly in Standard Oil's huge automotive laboratory in Whiting, Indiana. Here fuels are designed, too, for automobiles that will not be on the street until five years from now. Robert W. Boydston, above, is working on a "fuels of the future" experiment.

In Standard Oil's big automotive laboratory in the research center at Whiting, Indiana, engineers are going through a similar process every day—asking questions and finding answers. How do fuel additives affect combustion? How do they affect engine deposits? How do burning rates differ?

And the questions continue outdoors, too. In all kinds of weather—hot, cold, wet, dry, low barometer, high barometer—different blends of gasoline are tried to see what happens under what conditions. Fuels are designed in the laboratories for experimental engines that won't appear in an automobile for five years. Standard Oil products are under constant improvement to give the finest performance possible. You get years-ahead quality with Standard Oil products—and at a reasonable cost.

Where does progress start? Does it start on the private driveway of a boy's home or in a huge research laboratory? Progress starts whenever someone asks "Why?" and sets out to find an answer.

What makes a company a good citizen?

Perhaps even more than an individual, a company must have a healthy respect for the future. Many companies, like Standard Oil, have large families—tens of thousands of people who depend on Standard for their livelihood. Progress through research is one way of protecting the future of both employees and investors and of helping to assure economic stability for the communities in which they live and work.

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(INDIANA)

STANDARD

THE SIGN OF PROGRESS... THROUGH RESEARCH

commercial plant in the world to make acrylontrile from proplylene, ammonia, and air (PW—Feb.13'59, p34).

•

A new grease for military supersonic jet aircraft has been developed by Standard Oil Co. (Ind.). Now available for industrial use, the grease lubricates at temperatures from —65F to higher than 400F.

The new grease, a synthetic compounded with aryl-substituted urea as a thickener, was developed for the Air Force to solve the problem of lubricating bearings of internal brake assemblies of supersonic jet planes. It is being marketed under the trade name of Supermil ASU 06752.

•

Humble Oil & Refining Co. plans to resume full operations at its Baytown (Tex.) refinery's butadiene plant early in May. The plant, which was closed last spring, put three of its four units back on stream last fall. The remaining unit is now being prepared for operation.

•

Shell Oil Co. is using a new firefighting unit at its Houston refinery. The pumper-type truck, called a "foam house on wheels," can deliver 1,250 gal. of water per minute. The water can be used alone, or mixed with chemical foam, depending upon the type of fire to be extinguished.

•

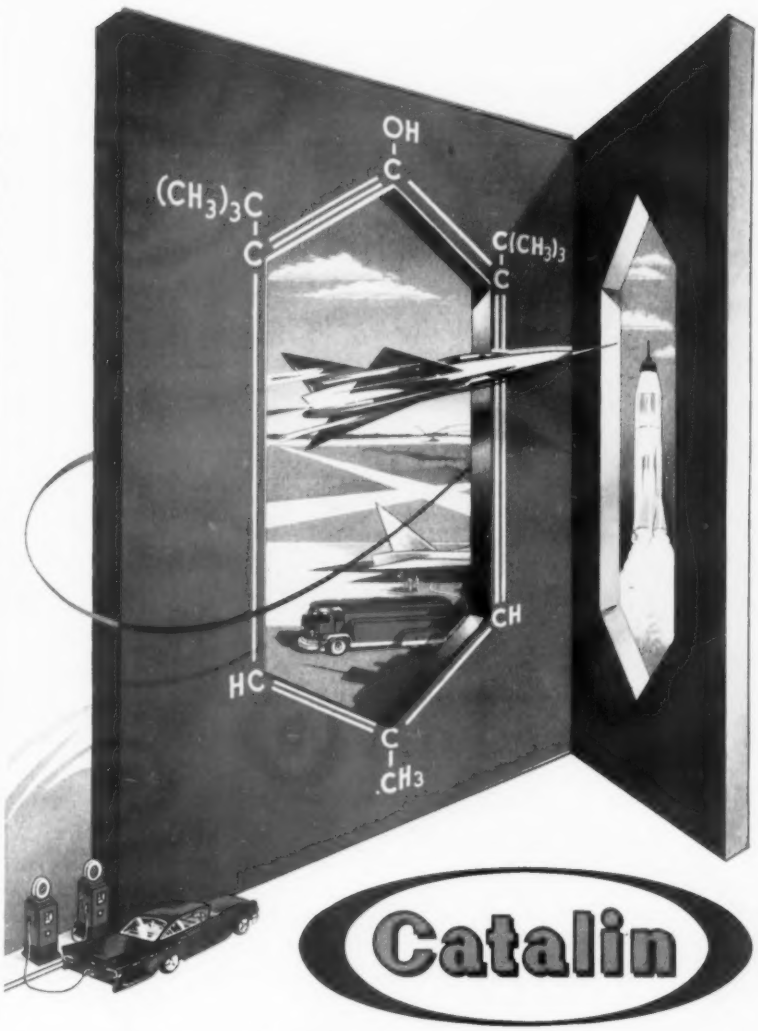
The oil industry may soon be required to tackle the problem of producing edible food fats from petroleum, according to John Vallee, Director of the Institute of Fat Products, in Paris.

Vallee recently said that present production of 39-million long tons of edible fats from vegetable or animal sources will be inadequate if population growth continues at its present rate.

The institute, therefore, has been studying the production of certain algae rich in fats and proteins, and the synthesis of edible fats from petroleum.

•

Gulf Oil Corp. has put its fifth alkylation unit on stream, the first at its Toledo (Ohio) refinery. The unit, which will produce about 2,000 b/d of alkylate, is the company's first to use gas-fired reboilers, thus eliminating the need for any new steam generating capacity.



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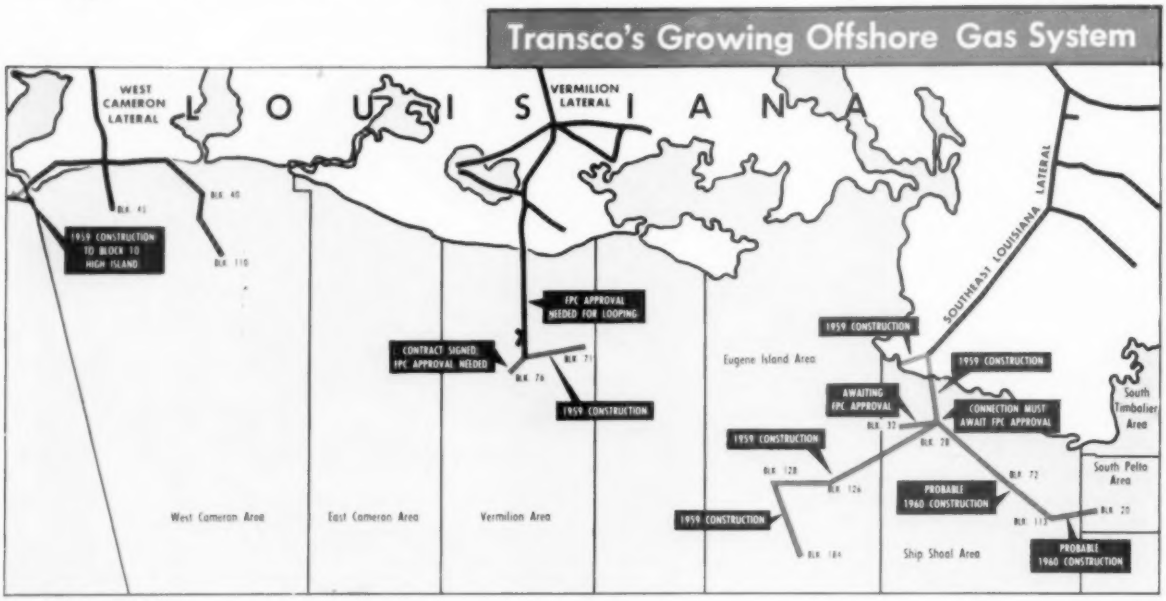


Offshore Louisiana: The Gas Web Grows

Transcontinental Gas Pipe Line Corp., a comparative newcomer in offshore pipelining, is about to make its bid to become the largest gatherer of offshore gas.

Transco has been in the offshore pipeline business less than two years. (In fact, it's been in the over-all pipeline business only since 1951.)

But Transco means to make up for lost time offshore—and quickly, too.

Transco now has under way what is probably the year's most ambitious expansion program in offshore Louisiana gathering lines (map).

Interstate gas transmission companies are hardly sitting on their hands offshore (PW—Feb.20'59,p70); expansion is the strong pattern.

But Transco's 1959 plans for its offshore gas system go well beyond the average.

By the end of 1959, Transco expects to be gathering more than twice the amount of offshore Louisiana gas it can now handle.

Transco is now taking about 140-million cu. ft. of offshore gas daily—about 100-million cf/d from Blocks 40, 45, and 110, West Cameron area; and another 40-million cf/d from Block 76, Vermilion Area.

Most of the Transco offshore gas system is of 16-in. diameter, but some lines are as small as 10 in.

Before Louisiana's recent lease sale, gas reserves on about 12% of the total offshore Louisiana leased acreage—some 1.8-million acres—were committed to Transco.

Transco is proud to have reached its present position in offshore gas gathering in less than two years.

Roger D. Stanwood, Transco's vice-president in charge of gas supply, points out that Transco's first offshore line reached only 8 mi. out to Block 45, West Cameron Area, where the company began to take gas in November, 1957.

"That was Transco's baptism in the Gulf, and it was a good thing it wasn't a long line," Stanwood recently told PETROLEUM WEEK. "It gave us a chance to find out how those things were being built, and so forth."

But the company is even prouder about prospects for the end of this year, when it expects to be taking more than 290-million cf/d of offshore Louisiana gas.

Here's how Transco is building its taking capacity:

At the moment, Transco is pushing its lines out into the Ship Shoal and Eugene Island areas.

The company already has Federal Power Commission authorization for, and is building, a 16-in. system south into the Ship Shoal Area, then west and south to Blocks 126, 128, and 184, Eugene Island Area.

FPC has scheduled hearings for late May on Transco's application to extend this part of its system to reserves in Blocks 28 and 32, Ship Shoal Area.

Transco has plans for gathering a lot more gas from its Vermilion area lateral later this year, too.

Last year, Transco's Vermilion system was tied into what the company calls one of the most important of all offshore gas fields—the large Block 76 field, Vermilion Area. (The field includes Blocks 66 and 67 as well.)

Stanwood says this field is "a long way from being fully developed.

"We think it is the biggest—or if not the biggest, one of the biggest—fields we've ever seen."

Transco expects to extend its Vermilion lateral to Block 71 sometime this summer and, if it can get FPC approval, it will loop the Vermilion lateral to provide greater capacity.

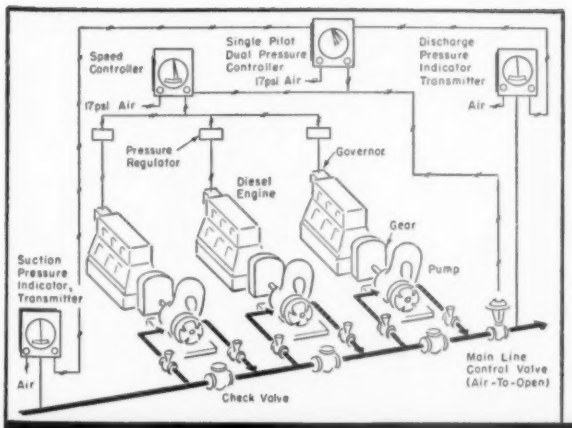
And Transco will probably begin receiving some gas originating off the Texas coast later this year.

FPC has already certificated a Transco leg from the West Cameron Lateral to Block 10, High Island Area, and construction is set for this summer.

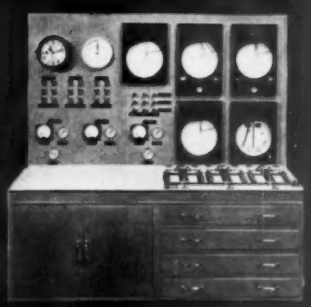
Although this block is off the Texas coast, Magnolia Petroleum Co., the operator there, will deliver the gas to Transco in Louisiana waters.

Transco already has big plans for still more offshore gas-gathering facilities in 1960.

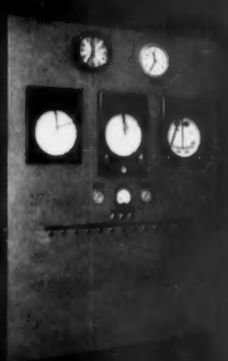
Under consideration is a further



Honeywell controls automatically balance suction and discharge pressures at each of six pumping stations. If the suction or discharge pressure deviates from the set limits, the pipeline is automatically protected in two ways. The decreasing pressure output from the single-pilot dual pressure controller lets the valve close . . . causes the speed controller to slow down the engines if the decreasing signal drops below the speed controller set point.



Pumping stations No. 1 through No. 5 have Honeywell control consoles with graphic panels. In addition to the necessary temperature, pressure, flow and speed recorders and controllers, each console contains a complete alarm system to protect workers and equipment.



The use of standard off-the-shelf instruments on this control console for Station No. 6 and the other five consoles simplifies maintenance . . . gives the flexibility needed for easy expansion.

U. S. planes in Spain fueled by 485-mile pipeline

Line is automatically controlled by Honeywell instrumentation

A pipeline that extends almost the full length of the Spanish peninsula carries jet fuel and aviation gas to U.S. Air Force bases. Honeywell instrumentation serves four basic functions in the line: running control, measurement, safety, and start-stop control.

The six diesel-powered pumping stations that keep fuel flowing are equipped with semi-automatic starting and automatic running and stopping control. A graphic console is the control center for each station.

Throughout the entire system, design emphasis is on standard, off-the-shelf equipment and minimum maintenance—in keeping with military requirements. And while the system is quite simple in comparison with the more highly sophisticated remotely-controlled pipelines in service today, it provides the maximum in automatic, economical control. Moreover, its extreme flexibility allows for simple expansion.

Honeywell, world's largest maker of controls, is the logical source for your own instrumentation needs. Call your nearby Honeywell field engineer today . . . he's as near as your phone.

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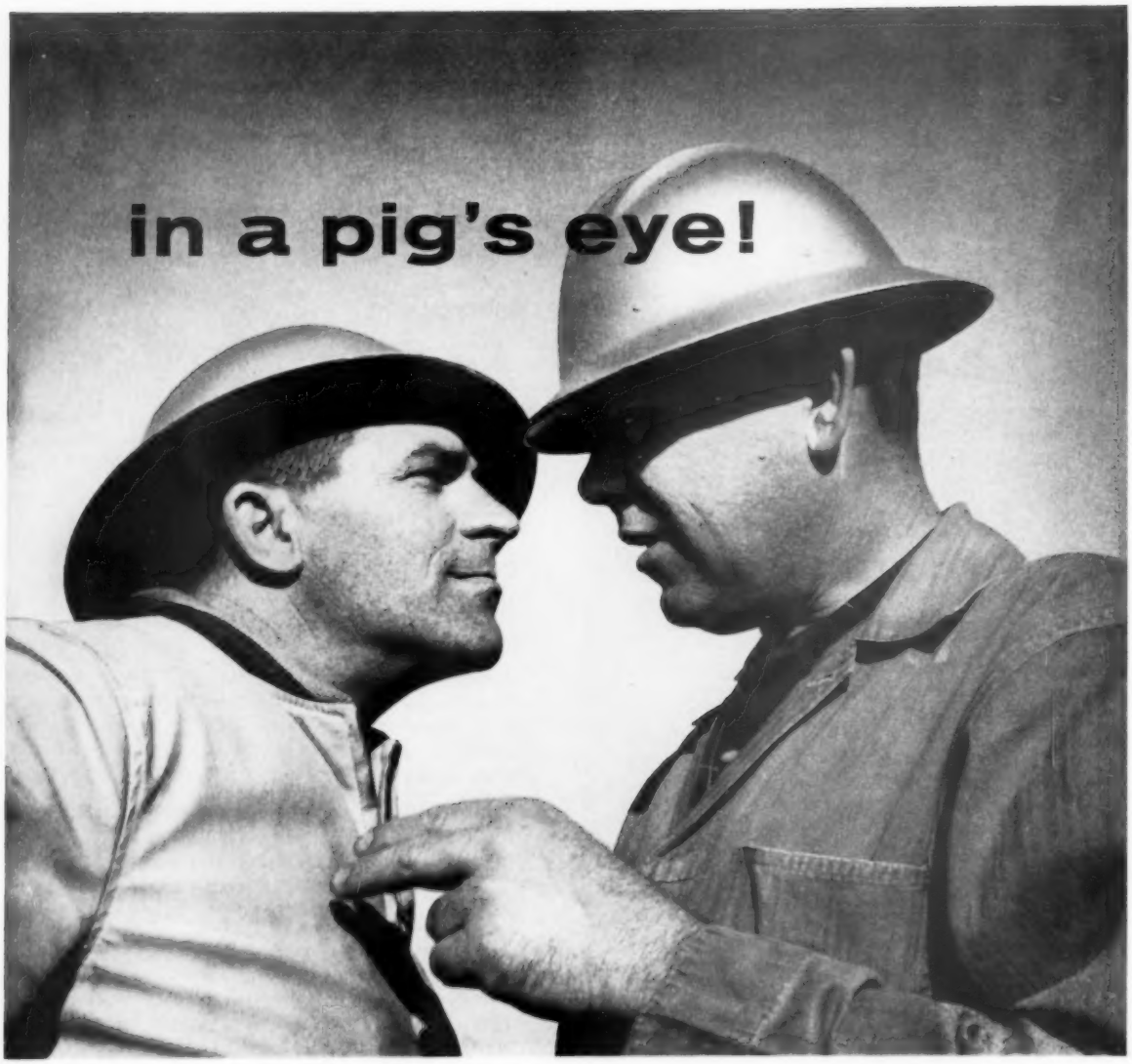
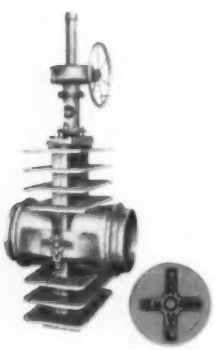


THERE IS A DIFFERENCE IN VENTURI VALVES



The difference is Grove's compact body design. It permits a long, gradual taper of venturi valve hubs that gives you better flow characteristics than any other reduced opening valve. Ordinary valves have thicker bodies and a sharper taper of venturi hubs, causing increased line turbulence and resulting pressure loss.

Even with a port reduction of two to four basic pipe sizes, Grove Seal-O-Ring Venturi Valves have comparable flow capacity and pressure loss to so-called "full ported" rectangular port plug valves. And, they cost less too.

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extension in the Ship Shoal and South Pelto Areas. The reserves in Block 113, Ship Shoal Area, and Block 20, South Pelto Area, are already committed to Transco. And FPC approval has already been granted for extensions to them. If the operators involved are willing, Transco might bring production from all three into its system.

Transco's main reason for its big push into the Gulf is a simple one—the attractive gas packages there.

"Because of our expansion needs," Stanwood says, "we needed such a great increase in reserves commitments and so quickly that there simply wasn't that much available gas lying around onshore.

"Look at all that gas offshore—between 100-trillion and 150-trillion cu. ft., depending on whose estimate you use.

"And look how close Transco was to two packages of it (West Cameron and Vermilion Areas) before we even built the South Louisiana lateral.

"It was simply that the gas was there in the quantities we needed, and it was readily accessible."

For the first time in Transco's history—thanks to its growing offshore gas reserves—the greater part of the gas moving through its interstate mainline now originates in Louisiana, instead of Texas.

"When this line started operating," Stanwood says, "about 75% of the gas came from Texas and about 25% from Louisiana. Now we're on the basis of 48% from Texas and 52% from Louisiana."

In terms of amount of gas per year, this shifting source of supply breaks down this way:

In 1957, Transco bought a total of about 281-billion cu. ft. of gas, of which 122-billion came from Louisiana. Last year, the total came to 338.2-billion cu. ft., with 156.6-billion coming from Louisiana. (These figures reflect only the gas purchased for resale and not the gas transported for others.)

Now, almost four months into 1959, the balance has shifted in favor of Louisiana gas.

And as Transco's upcoming offshore Louisiana systems get into full operation, the trend will be more heavily to Louisiana gas.

"It's going to be 60% Louisiana, and 40% Texas very soon," Stanwood predicts. And "very soon," he says, may mean by the end of this year.

By the end of 1959, The Transco mainline will be moving about 1.2-billion cu. ft. of gas daily, assuming all of the company's pending applications before FPC are approved.

Of this over-all capacity, Transco expects that at year's end it will be able to put into its system 800-million cf/d from Louisiana sources, mostly because of its increasing facilities offshore.

However, Stanwood, points out, this doesn't mean that Transco will cut down on the volume of gas it buys in Texas.

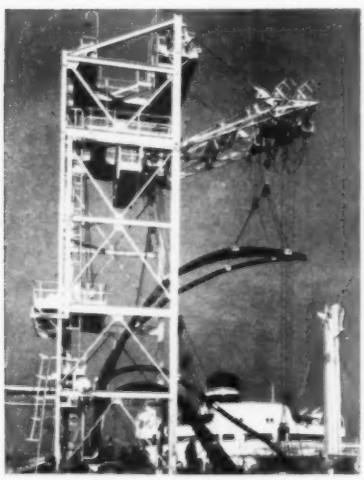
"Actually," he says, "because our annual demand continues to increase, we'll be buying more Texas gas.

"The shifting of the ratio merely reflects the big upsurge in growth of Louisiana's reserves and their accessibility to the Transco system."

Transco intends to continue its quest for additional offshore gas reserves.

The latest example of the company's activity along this line is the contract it just signed with Zapata Off-Shore, Felmont Oil Corp., et al, for gas from Block 86, Vermilion Area.

Transco will be looking for similar deals in the future.



For Fast Loading

Mechanized tanker loading is catching on around the world as well as in the U. S. This is the new hose-handling installation at the Fawley (England) refinery of Esso Petroleum Co., Ltd., which, Esso says, has speeded tanker turnaround considerably.

The loading system has nine hoists, and is capable of presenting up to seven 10-in. rubber hoses to the tanker manifold simultaneously. All the hoists are remotely-controlled by an operator from a console on the quayside.

The loading system was built to Esso specifications by Foster Wheeler, Ltd., and Woodfield Rochester, Ltd.

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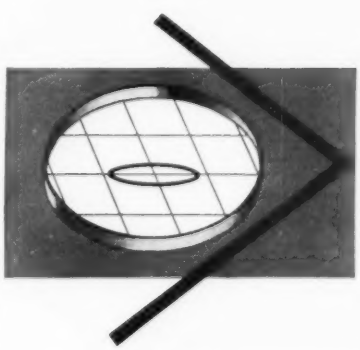

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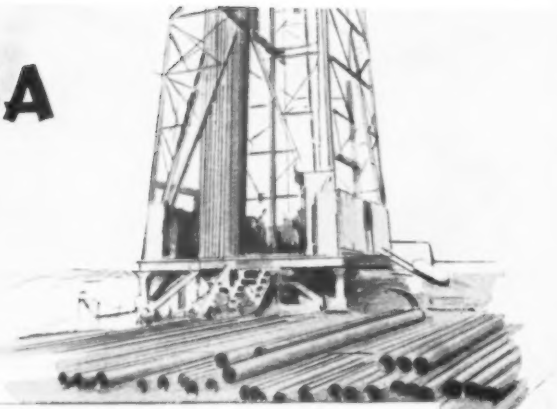

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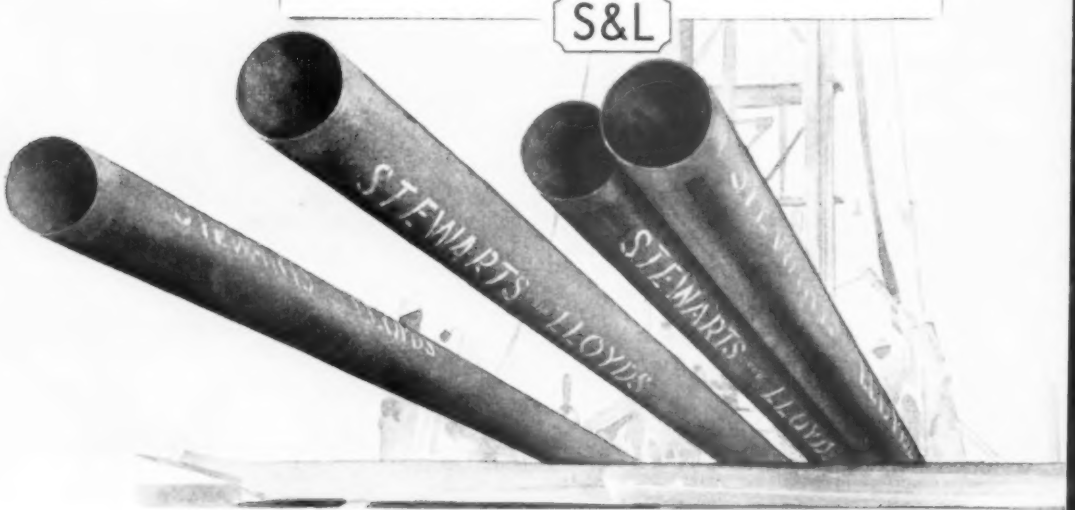

What's New / IN TRANSPORTATION

Peace River Oil Pipeline Co., Ltd., wants to build a 225-mi. crude system to its Sturgeon Lake (Alta.) terminal from northeastern British Columbia fields.

The company last week asked both the Alberta and British Columbia provincial governments for permission to build the line, which would link Milligan Creek, Beatton River, and Boundary Lake fields with refineries at Dawson Creek, B.C., and Grand Prairie, Alta.

Peace River's system feeds the Trans Mountain pipeline at Edson, Alta.

Gibson Associated Oils, Ltd., has also filed a proposal with provincial governments to link the northeastern British Columbia fields with pipeline outlets to market.

•

The International Transport Workers Federation has mapped its line of attack on shipowners who register their vessels under Panamanian, Liberian, or Honduran flags. These are the so-called "flags of convenience" of "flags of necessity" vessels (PW—Jan.30'59,p13).

ITWF, the worldwide labor group which late last year convinced U.S. maritime unions to boycott Pan-Hon-Lib flag vessels, formally decided last week that each owner of such vessels should be pressed by unions of his country.

The federation wants its member unions to obtain working conditions for crews "at least as good as those on ships in the registry of traditional maritime nations."

American unions, however, are being asked only "to get the best possible conditions" aboard Pan-Hon-Lib registered ships of American owners.

Owners of ships in Pan-Hon-Lib registry have long claimed that the working conditions aboard their ships are well above standards set by impartial inspecting agencies.

•

Pipeliners may not get all the communication channels they need for their increasing reliance on remote-control operations (PW—Apr.3'59, p44).

Joseph E. Keller, general counsel of the Petroleum Industry Electrical Assn., warned the group recently that current Federal Communications Commission deliberations could have important effects on pipeliners' communication systems.

FCC, Keller pointed out, is now considering whether to increase allocations of wave band frequencies to industrial users for private communications, or to grant expanded frequencies to communication common carriers such as American Telephone & Telegraph Co.

AT&T, as of January, 1961, won't provide lease and maintenance for industrial users.

•

The collapsible tank for hauling liquids may turn out to be the key to the problem of current high deadhead mileage on tank cars, Morris Forgash, president of United States Freight Co. told the National Petroleum Assn. last week.

Forgash said tank car fleets totaled almost 1-billion empty-car miles in 1957, "actually more miles than the fleet carried under load."

He said that collapsible tanks might solve the problem because they can "ride back to their point of use in the same equipment with almost a full load of dry cargo."

•

The first oil cargo for movement through the new St. Lawrence Seaway has just been chartered.

The Danish tanker Petra Dan is loading a cargo of dirty oil in the Caribbean for the first of two consecutive trips to Montreal and Toronto.

The vessel was chartered at USMC—60% for the trips, with an additional $1.20 per ton for Toronto discharge on the first trip, and $1.10 per ton for such discharge on the second trip.

The 16,000-ton ship will lighter about one-third of its cargo at Montreal on both trips.

•

Pacific Gas & Electric Co. plans to store 3¼-billion cu. ft. of natural gas in the Pleasant Creek field near Winters, Yolo County, Calif.

When completed next year, the Pleasant Creek field will have a maximum withdrawal rate of 80-million cu. ft. of gas daily.

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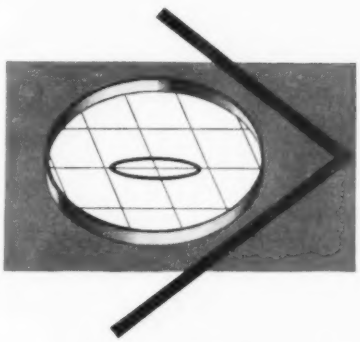

From the pioneer in electric resistance weld line pipe...

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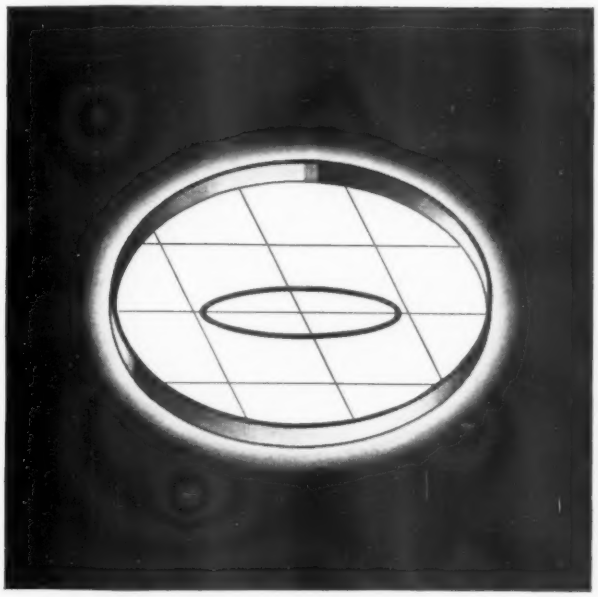

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Oil Discovery Pace Quickens in Libya

The rapid pace of oil discoveries—seven in the past 16 months—is making Libya one of the hottest wildcatting areas outside the U.S.

Three of the finds were made in the past month alone. Jersey Standard announced its second discovery just last week, and said it looks like the "best test yet" in Libya. The No. 1 Zelten flowed at the rate of 100 bbl. per hour of sour, 37-gravity crude through 5/8-in. choke on drillstem test from about 5,400 ft.

The company, still drilling ahead, reports that things look "even better" the deeper it drills. So far, the pay section is reported nearing 180 ft. in thickness. The test, on Block 6, about 100 mi. from the Mediterranean Sea, in Zone 2, may attract more operators into this area of Cyrenaica.

The 15 companies now operating in Libya have 13 rigs in the country, with 8 more slated to arrive by the end of the year.

So far, these companies have drilled about 30 dry holes, many with minor shows of oil and gas.

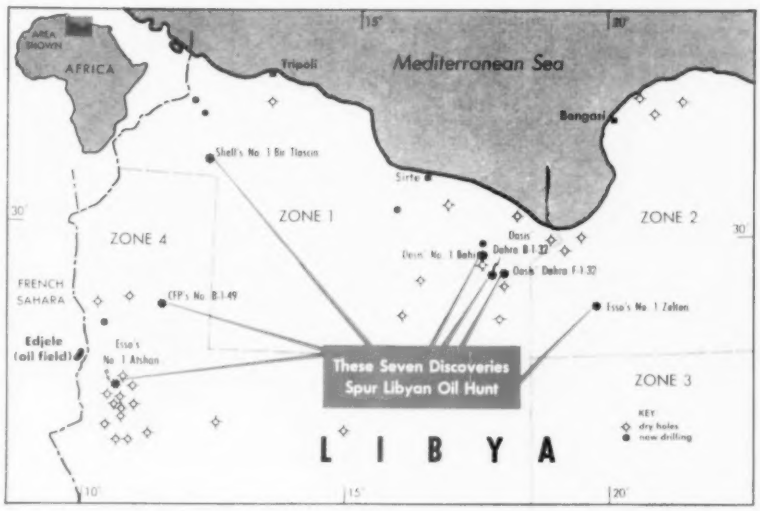
Most of the companies exploring are U.S. firms, including affiliates of Jersey Standard, Socony, Ohio Oil, Amerada, Continental, Gulf Oil, Indiana Standard, Nelson Bunker Hunt, Gulf Producing, W. R. Grace, and Caltex.

European interests include Royal Dutch Shell, British Petroleum, Cie. Francaise des Petroles, and Deutsche Erdoel.

Other European companies will be coming in: Gewerkschaft Elwerath has been unofficially granted a concession in Zone 1; Italy's Ausonia Mineraria, a privately owned firm, has a concession application pending; Gelsenberg Benzin has an agreement to take a 25% interest in Socony's operation; and Wintershall A. G. is to participate in the Deutshe Erdoel acreage.

Oasis Oil Co., which has already chalked up three discoveries, will be bringing in two new rigs, for a total of five by mid-summer. Two of the rigs will continue the company's wildcatting program, while the other three will be used for development work.

Oasis, which operates in Libya for Ohio Oil, Amerada, and Continental, says one rig will be used to start wildcatting in July on its large Block 26 (Zone 4), along the Tunisia and French Sahara borders. Plans are also being considered to move a rig into Block 33, in Zone 2 near Egypt.



Oasis, which has only one dry hole out of five tests drilled to date, is doing considerable drilling work around its Dahra find, the company's second discovery.

Oasis found oil in its first two wildcats, at Bahi and Dahra, located about 27 mi. apart in Zone 1. These are on its 1¼-million-acre Block 32, which lies about 85 mi. from the Mediterranean.

The first discovery, No. 1 Bahi, tested 39-gravity oil at 5,822-54 ft. It was completed as a 500 b/d producer, and is now shut in.

The second discovery, No. B-1-32 Dahra, found oil in a 60-ft. porous limestone zone at 3,747 ft. Oasis believes it may be capable of producing at the rate of 1,000 b/d. Oasis is now retesting this well, and has found some gas at 2,700 ft.; it is now moving down to test the oil zone. When testing is completed, this rig will be moved 4 mi. west for another stepout.

Oasis has already found oil in one stepout, 9 mi. east of the original Dahra find. The company says its No. F-1-32 "looks commercial." The well has oil mixed with water in the same zone in which the B-1-32 test found oil. In addition, it has oil in a zone around 3,200 ft., in which the original Dahra find had gas. The well is now being tested. It reportedly has a 700 b/d potential.

When testing on this well is completed, the rig will be moved to the site of another wildcat, 14 mi. west of the B-1-32.

Oasis' one dry hole—the No. 1 Thalith—was drilled between the Bahi and Dahra finds. It was abandoned at 5,051 ft.

The company is now drilling ahead on its D-1-32 wildcat on the same block.

Cie. Francaise des Petroles, which found oil in its initial Libyan wildcat, last week moved in its second rig, and is spudding in its fourth Libyan wildcat on Block 23. This block is located in Zone 1, along the Tunisia border, not far from the sea.

CFP is also drilling ahead in the No. 1 Ulet Sheppi on the same concession. This test encountered shows of oil and gas at 3,500-40 ft., but ran to water.

The company's discovery, B-1-49, was completed in the Devonian sand for a reported 100 b/d of 47-gravity oil, and is now shut in. CFP abandoned another wildcat on Block 49.

Esso Standard, with a 500 b/d well shut in in the Fezzan, may move in a third rig, depending on the final results of drilling in its new Zelten discovery.

The company had previously drilled three dry holes in the Cyrenaica area of Zone 2.

Esso is abandoning the No. 1 Inazana—its 11th wildcat on Block 1 (Zone 4). The wildcat had some gas with salt water at 6,500 ft.

Esso discovered the first oil in Libya with its third test in the sun-baked deserts of the Fezzan. No. 2 Atshan flowed 500 b/d of 47-gravity crude on test through 3/8-in. choke from 2,100-40 ft. (PW—Feb.14'58,p56). But the oil find turned out to be non-

commercial. Further tests in the area had noncommercial shows of oil and gas, and were abandoned at depths between 2,800 ft. and 4,370 ft.

Shell, with what appears to be a good discovery in the northwestern corner of Libya, will bring in a second rig shortly.

The company's No. 1 Bir Tlacsin yielded 30 bbl. of 36-gravity crude and 1½ bbl. of salt water on 30-minute test at 8,909 ft.

Its No. 1 Inazar, on Block 52 just above Esso's Atshan concession, was drilled to 9,657 ft. with minor oil shows, and abandoned.

Socony Mobil, which has just abandoned its fourth dry hole, will move in a second rig around the middle of the year.

The rig that was used to drill the No. 1 Sidra on Block 10, Zone 1, will be moved to Block 12, in Zone 2. This block is adjacent to Esso's Block 6, where oil was discovered last week at Zelten.

Two of Socony's previous tests encountered minor oil and gas shows: No. 1 El Gattar, on Block 57 (Zone 1), and No. 1 El Hofra, on Block 11, southeast of Oasis' Dahra find. No. 1 Ben Gamad, along the Mediterranean coast on Block 11, was abandoned at 8,340 ft.

Indiana Standard is slated to bring in a rig to start its first wildcat around the middle of the year.

At present, two gravity parties, one seismic crew, and three surface geological parties are exploring the company's acreage. Its concessions lie in the southern half of Libya: two in Zone 4, one in Zone 3.

Gulf Oil, which has abandoned four dry holes in the Fezzan is reportedly slated to move in a second rig before the year is out.

At present, the company has scheduled a new wildcat on Block 66, Zone 1. Gulf has abandoned three tests on Block 67, south of Atshan, at depths between 3,500 and 4,000 ft. It has also abandoned its No. 1 Ubari on Block 68, also in the Fezzan.

A "significant" show was encountered in one of the dry holes, according to Gulf's annual report.

Libyan American is about to resume wildcatting in Libya, with a test 15 mi. west of Oasis oil's Bahi discovery (PW—Apr.17'59,p61).

The company, owned 51% by Texas Gulf Producing and 49% by W. R. Grace, will spud the No. 1 Malbruch, on Block 17, about May 1; it intends to drill two other tests on this block.

The company says it may do some wildcatting on Block 20 next year. This block is only 35 mi. from Esso's Zelten discovery.

Libyan American has previously abandoned three dry holes on its coastal Block 18, Zone 2, at depths between 8,600 and 12,000 ft. It also abandoned a test at 2,200 ft. in the same area because of junk in the hole.

Caltex, which is now below 7,500 ft. in a coastal wildcat on Block 43, Zone 1, will get a second rig started this month on Block 73, in the Fezzan.

The company has abandoned one wildcat, No. 1 Gebel Uaddan, at 3,565 ft. on Block 44, Zone 1.

British Petroleum, which has abandoned three tests to date, is now overhauling its rig, prior to using it to drill a water well on Block 37.

The company abandoned the tests at depths ranging from 3,500 to 5,450 ft.; the No. 1 Castel Benito, on Block 34, Zone 1; No. 1 Wadi Zachem, on Block 63, Zone 1; and the A-1-64, in the Fezzan. The company also abandoned another test on Block 63 at 914 ft. due to technical difficulties.

TGT Gets Argentine Oil Rights

BUENOS AIRES—The sixth Argentine oil development contract to be awarded on a negotiated basis—rather than by public tender—went to Tennessee Gas Transmission Co. last week. It was described here as a "renewal" of the 1957 contract with Laughlin Porter Drilling Co., of Houston, for drilling in Tierra del Fuego, rather than a "new" award.

The announcement by YPF, Argentina's state oil company, made it clear that the TGT contract thus does not constitute a reversal of its revised policy, implemented this year, of calling for public tenders. Two such tenders are outstanding, with awards on the first due to be announced soon, and bids on the second due by early July.

The new 25-year TGT contract for exploration and development in Tierra del Fuego absorbs Argentina's previous drilling contract with Laughlin Porter, which also signed the new pact.

TGT's minimum investment in an original 5,404 sq. mi. will be $10-million in the first three years, including $4-million for exploration. Another $3-million exploration expenditure is required if TGT continues after the third year.

If TGT has invested $20-million by the end of the 10th year, the acreage will be reduced 40% then, and another 20% six years later. Otherwise its acreage will be reduced to between 193-386 sq. mi. TGT is obligated to keep at least four rigs operating.

The first 504,000 bbl. of crude produced in Argentina's semi proved half of the island will be delivered free of charge to YPF by TGT's Tennessee Argentina S.A., in return for the use of existing installations. YPF's payments to the company will start 16 months after the next 220,500 bbl. of production are delivered.

TGT will be paid about $1.77 per bbl. of crude delivered. The price ($11.15 per cubic meter) will be adjustable in accordance with world market levels.

YPF, which reserves all marketing rights for the oil, is guaranteed a minimum export profit of some 24¢ per bbl. ($1.50 per cubic meter), if and when TGT is authorized to export oil.

According to YPF, this will leave TGT considerable margin for profit, since the light Tierra del Fuego crude is comparable to Venezuelan oils selling for about $3.24 per bbl.

Argentina's proved reserves in the island lie close to the coast. Due to the island's distance from consumption centers, Argentina had done little to develop its production there until the Laughlin Porter contract was concluded during the Suez crisis. The Chilean half of the island currently accounts for virtually all of its 9,000 b/d production.

New Iran Wildcat Set by Consortium

The 17-company Iranian Consortium this year will extend exploratory drilling for the first time to the eastern end of its operating area in southern Iran. It will also continue its fast-paced development of fields and export facilities near the northern end of the Persian Gulf.

According to an annual review released last week by the two operating companies for the international group, a wildcat is planned this year near Bandar Abbas, on the Persian Gulf coast opposite Qeshm Island.

The Consortium's first coastal wildcat—still being drilled—was spudded last year at Kuh-I-Binak, south of the Gach Saran field. By the end of 1958, it had reached 5,816 ft., with "great difficulty" being experienced in com-

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bating high-pressure salt water. The wildcat, which was expected to yield the first clues to Iran's offshore oil prospects, has reportedly encountered only noncommercial shows of 27-gravity oil in the Asmari limestone, which is prolific in the Gach Saran field.

Exploratory drilling last year was also continued inland, north of Abadan, in the No. 6 Ahwaz, which was capped last June after burning for 65 days. Drilling was resumed in October after a new rig was erected over the hole. A 600-ft. oil column was encountered in the Asmari, and oil-bearing Cretaceous limestone had been penetrated at year end.

In a drillstem test at 10,849-939 ft., the well flowed at the rate of 1,000 b/d of 23-gravity crude through 3/8-in. top and bottom chokes.

The Consortium's development drilling last year resulted in nine successful completions, with combined potential of at least 278,000 b/d, not counting a tenth in process of completion at year's end at Naft Safid. Two others were abandoned—one at Agha Jari, the other at Gach Saran.

Six of the successful wells were completed at Agha Jari, two at Gach Saran, and the ninth at Naft Safid.

The Consortium's record 821,000 b/d output, up from 716,000 b/d in 1957, yielded Iran an 11% rise in oil revenues, to $248.1-million, the report showed.

What's New / AROUND THE WORLD

UNITED KINGDOM—Britain's Foreign Office expressed doubt last week that the government would reply to Venezuela's complaint on British Petroleum's pricing policies (PW—Apr.10'59,p6).

Although the government is a shareholder in BP, it does not dictate its trading policies, a spokesman told PETROLEUM WEEK. He added that no reply to Venezuela's complaint is formally required, since the government received only a "copy of a memorandum, not a note."

•

FRANCE—Heavy fuel oil consumption dropped 11% in the first quarter of this year, compared with the same period of 1958. This reflected a slackening in industrial activity, according to the French refiners and distributors trade association.

Other products showed gains over last year: gasoline up 10%; gas oil up 13%, and light fuel oils up 12½%.

•

Foreign exploration rights acquired in recent years by the Buckley interests of the U.S. will now be held by Magellan Petroleum Corp., formed last year in Panama as a subsidiary of Pan-Israel Oil Co. and Israel-Mediterranean Petroleum Inc.

Magellan is now absorbing its two parent companies. It holds concession interests in Australia, Guatemala, Canada, and Israel, and a royalty interest in Ecuador.

•

VENEZUELA—Oil output slid to 2,959,513 b/d in March, from the new record of 3,095,937 b/d set in February.

According to Ministry of Mines & Hydrocarbons figures, all companies cut production except Texaco, Mercedes, Sun, and Atlantic, which showed slight gains.

The averages, in b/d: Creole 1,193,342; Shell 904,812; Mene Grande 400,484; Mobil 124,374; Texaco 59,826; Sinclair 58,090; Richmond 56,107; Mercedes 34,179; Sun 31,076; Atlantic 26,117; San Jacinto 24,275; Superior 22,987; Signal 12,906; Phillips 9,512; Talon 1,344; Caracas 82.

•

EGYPT—The government expects that offshore drilling—the first in Egypt—will be started late this year, after arrival of an Italian offshore drilling platform in August.

The platform is described as part of an $8.4-million equipment contract signed with Italian firms by Cie. Orientale des Petroles d'Egypte (Cope), owned 49% by Egyptian agencies, and 51% by Italy's state-owned ENI group and Petrofina.

The announcement was made by Minister of Industry Aziz Sidki after the signing on Apr. 2 of a recent agreement granting Cope 13 new prospecting areas in Sinai and offshore in the Red Sea.

•

IRAN—The Consortium's oil output hit a new record of 972,000 b/d in March, a boost of 147,000 b/d over February. The previous high of 904,000 b/d was set last September.

•

ITALY—Getty Oil Co. disclosed it has an option running through 1961 to acquire stock in "several" marketing companies in Italy, in addition to the remaining 10% interest in the new 40,000 b/d refinery at Gaeta, 40 mi. north of Naples.

Last year Getty bought 90% interest in the plant, built in 1957-58, from Industria Petrolifera Golfo, an Italian company whose name was subsequently changed to Getty Oil Italiana (PW—Jan.30'59,p39).

•

LEBANON—A government commission has proposed up to 18% government stock participation in any joint German-Lebanese oil company that may be formed to develop concessions held by Cie. Libanaise des Petroles (PW—Apr.17'59,p60).

This proposal, not yet approved by the Prime Minister, was suggested as one condition for extending the area of CLP's 1955 concession. CLP maintains that the extension is necessary to permit concluding a joint-venture exploration agreement with Gewerkschaft Elwerath, a West German oil company owned partly by Esso and Shell.

•

BOLIVIA—The first of two scheduled deep tests was spudded last week on the 108,000-acre Madrejones contract area held by Bolivian Oil Co., a Fish Engineering Corp. affiliate.

Big Chief Drilling Co., of Oklahoma City, is the contractor. The test is scheduled for about 15,000 ft.

•

BAHAMAS—Royal Dutch Shell has formed a new subsidiary to expand its Bahamas marketing operations.

The new Shell Co. of the Bahamas, Ltd., will take over the Bahamas business of Shell Co. (West Indies), Ltd., which had handled aviation products, lubricants, asphalt, and chemicals.

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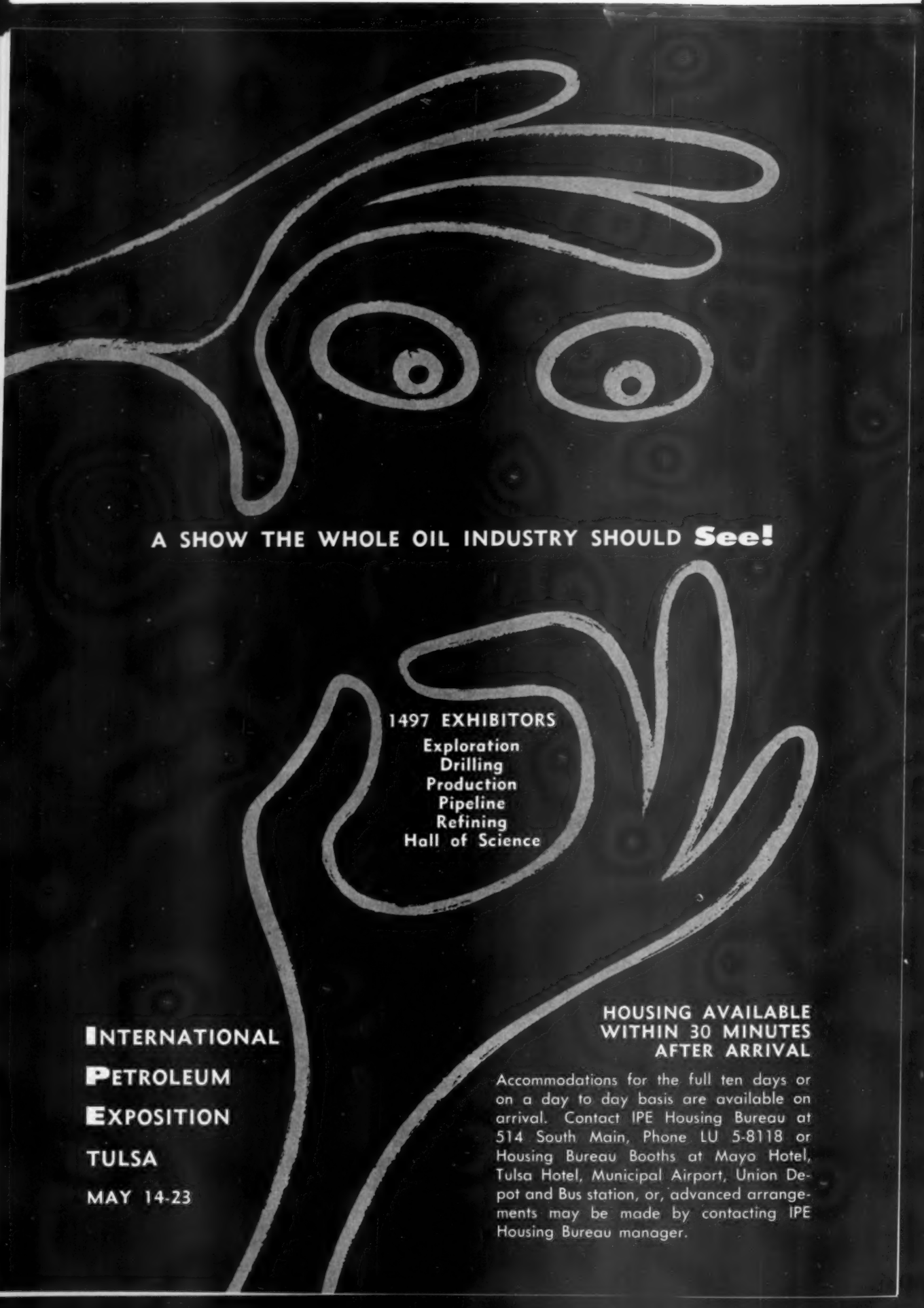
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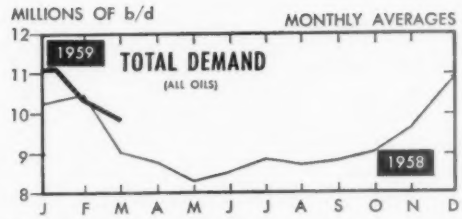
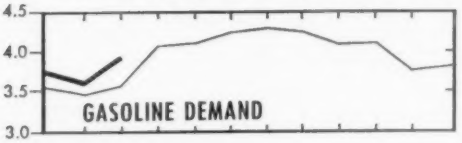
PETROLEUM WEEK'S

Fingertip Figures



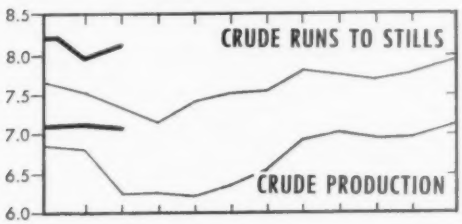
TOTAL DEMAND

Latest 4-week average	9,475
Year ago	9,007



GASOLINE DEMAND

Latest 4-week average	4,102
Year ago	3,918

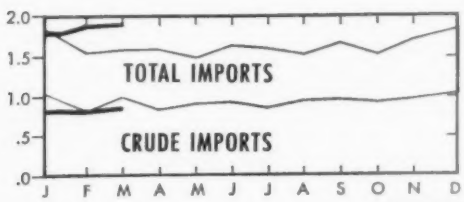


RUNS TO STILLS

Latest week	7,856
Previous week	8,092
Year ago	7,051

CRUDE PRODUCTION

Latest week	7,133
Previous week	7,163
Year ago	6,251

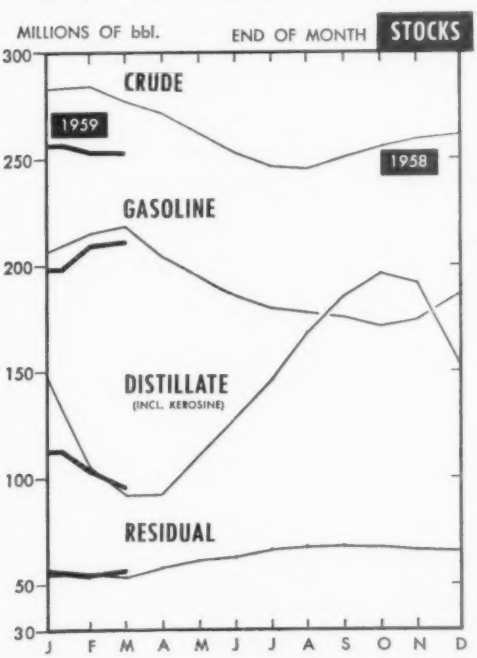


TOTAL IMPORTS

Latest week	1,115
Previous week	1,406
Year ago	1,191

CRUDE IMPORTS

Latest week	,636
Previous week	,855
Year ago	,758



CRUDE STOCKS

Week-ended 4-11	253.9
Previous week	252.4
Year ago	279.3

GASOLINE

Latest week	212.7
Previous week	214.6
Year ago	211.0

DISTILLATES

Latest week	101.3
Previous week	98.3
Year ago	90.6

RESIDUAL

Latest week	56.4
Previous week	57.4
Year ago	56.8

Rotary rigs running in the U.S. and Canada are pushing back toward the year's peak of 2,202 units reached in late March, after a dip in early April.

The number of operating rigs this week is placed at 2,190 units, according to data compiled by Hughes Tool Co., with nearly 2,100 running in the U.S., the highest this year. A year ago only 1,800 rotary rigs were drilling in the U.S., and only 85 in Canada.

Oklahoma and California are the states where the biggest increase in rotary drilling activity is occurring.

Currently, about 240 rigs are running in Oklahoma, up 45 from a year ago. And in California, where several operators have announced major drilling programs, 98 rigs are operating, a gain of 33 over a year ago.

Other states where activity has perked up noticeably include Colorado, with 39 rigs running, up 14; Kansas, with 136 running, up 27; Louisiana, with 332 rigs operating, up 32; Mississippi with 69 rigs, up 32; and Nebraska, with 28, up 15.

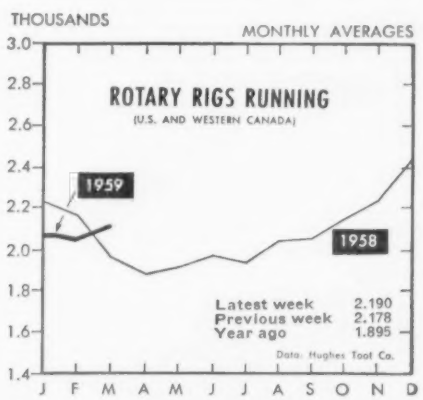
In Texas, a total of 744 rigs are running, an increase of 17 over last year.

* * *

Total imports last week, averaging 1,115,000 b/d, were the lowest since mid-February, 1958.

Crude imports, at 636,000 b/d, also were the lowest since February, 1958.

Of the current imports, finished products account for 43% of the total. Unfinished imports last week were down to 13,500 b/d, the lowest in about a year.



The Market Trend

There's Always a Reason for Everything

An elaborate system of apologies for low prices is springing up all over the nation. How else can one explain low prices now that import controls are in force?

Weakness in distillate prices is explained by the increased yields of middle-of-the-barrel products from domestic crude oils. Whether the argument is right or wrong, eastern railroads got a 0.4¢-a-gal. cut in diesel prices last week. Moneywise, this was a big break for the carriers. Prices were cut at all principal pickup points: Albany, Buffalo, Toledo, Philadelphia, Baltimore, and Norfolk.

Softness in avgas prices is explained by the fact that the majors aren't buying from independents. At the Gulf last week, Grade 115/145 was offered to the government at the eyebrow-raising price of 14.274¢ a gal. This is almost 3¢ a gal. below cargo prices for a comparable product in the Caribbean.

Easiness of residual prices is accounted for by the fact that quota-holders can ask for and get low prices on oils of foreign origin. Last week, residual was offered at "21¢ off barge" to a commercial consumer in Baltimore.

Low gasoline prices in the Midwest are attributed to the $1-a-bbl. quota trades on imported crude. Inland refiners now have "a little more to play with" via reductions on their crude costs. Thus, so the reasoning goes, they can shave prices finer. Tulsa retail prices were off 5¢ last week. Chicago retail prices looked as if they might follow suit.

The lack of buying in the markets is laid to the fact that most importers built up a cushion of foreign products. In some cases, importers stocked up enough fuel oils at seaboard locations to last them through the summer.

And you can even find apologists who will tell you in advance why crude oil prices are going to fall (when import controls would seem to support them). If importers are locked out on foreign takings, the argument runs, then they won't be nearly so happy to "go along" with domestic prices. U.S. crude prices have been just about the only "sticky" prices in the oil economy.

If crude oil buyers get mad enough about imports, they may reduce prices at home to cut their losses.

Gasoline Award: D-X Sunray was awarded a contract to supply 90,000 gal. of regular-grade gasoline to the city of Des Moines, Iowa. The price was 12.405¢, for deliveries in April, May, and June.

Pennsylvania Petrolatums: Pennsylvania refiners last week raised their prices for fully refined petrolatums—the first increase in these products in two years. The advances of 0.375¢ to 0.5¢ were explained by firmer markets and increased costs of manufacturing.

Sterling Sales: Not much publicity has been given this tiny facet of U.S. oil markets, but some sellers are exporting small quantities of specialties for sterling payment. Small lots of lubes have been sold this way to Europe.

The Market Place

AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of April 20

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, cargoes
- **Gasoline, 98 oct prem** ... **12-13†**
- Gasoline, 92 oct reg ... 10.75-11.5
- Kerosine ... 9.875-10.375
- Heating oil, No. 2 ... 9.375-9.875
- Gas oil, 48-52 d.i. ... 9.625-10.125
- Fuel oil, bunker "C" ... $2.00-2.10

Caribbean, cargoes
- Avgas, Grade 100/130 ... 16
- **Gasoline, 93 oct research prem** ... **11†**
- **Gasoline, 87 oct research reg** ... **10.125†**
- Gasoline, 79 oct research ... 9.125
- Gasoline, 70-72 oct motor method ... 9
- **Kerosine** ... **10.125↓**
- **Heating oil, No. 2** ... **9.375↓**
- **Gas oil, 48-52, d.i.** ... **9.625↓**
- Fuel oil, bunker "C" ... $2.00

New York Harbor, barges
- **Kerosine** ... **11↓**
- **Heating oil, No. 2** ... **10.5↓**
- Fuel oil, No. 6 ... $2.37-2.45

Okla-Group 3, northern shpt., bulk
- Gasoline, 89 oct reg ... 12-12.5
- Kerosine ... 10.5-11
- Heating oil, No. 2 ... 9.5-9.75
- Fuel oil, No. 6 ... $1.80-2.00

Chicago, bulk
- Gasoline, 91 oct reg ... 12
- Heating oil, No. 2 ... 10.25-11.85
- Fuel oil, No. 6 high sulfur ... 7.65-7.75

Los Angeles, rack
- Gasoline, 88 oct reg ... 12.15-12.65
- Diesel fuel, PS 200 ... 8.5-11.25
- Light fuel, PS 300 ... $2.80
- Heavy fuel, PS 400 ... $2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3 ... 4.5
- FOB Breckenridge, Tex. ... 4

LP-Gas
- Propane, Oklahoma (Group 3) ... 4.5

Pennsylvania Lubes
- Bright stock, 25 p.t. ... 22
- 200 vis. neutral, 25 p.t. ... 21

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent 95 v.i. ... 23-24
- Neutral, solvent, 200-210 vis. ... 19.5-20.5

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i. ... 24
- Neutral, solvent, 200 vis. ... 20.5

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130 ... 17.25
- Gasoline, 79 oct research ... 9.75
- Kerosine ... 10.75
- Gas oil, 48 d.i. minimum ... 10.5

KEY PRICES—CRUDE OIL

(2¢ differential per deg., of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, 36.0-36.9 ... $2.77-2.97
- North Dakota, 36.0-36.9 ... 2.62-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 ... 3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9 ... 2.92-3.22
  - West Texas, sweet, 36.0-36.9 ... 3.00
  - West Texas, N. M., inter., 36.0-36.9 ... 2.93
  - West Texas, N. M., sour, 32.0-32.9 ... 2.71
  - East Texas, flat ... 3.25
  - Mirando, 28.0-28.9 ... 3.31
- Illinois Basin, flat ... 3.00
- Pennsylvania Grade, Bradford dist., flat ... 4.15
- California, Signal Hill, 21.0-21.9 ... 2.50-2.54†
- North Louisiana-Arkansas, 36.0-36.9 ... 2.77-3.02
- Wyoming, sweet, 36.0-36.9 ... 2.85-2.90
- Wyoming, sour, 32.0-32.9 ... 2.63-2.71

Canada (flat prices, at the well)
- Acheson-Stony Plain (Alta.) ... $2.47
- Leduc-Woodbend (Alta.) ... 2.53
- Redwater (Alta.) ... 2.42
- Daly (Man.) ... 2.21
- Smiley (Sask.) ... 2.18

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 47.0-47.9, Tucupido ... $3.34
- **San Joaquin, 41.0-41.9, Puerto la Cruz ... 3.10↓**
- **Oficina, 35.0-35.9, Puerto la Cruz ... 2.78↓-2.80↓**
- Tia Juana, Medium, 26.0-26.9, Amuay ... 2.30
- **Bachaquero, flat, Las Piedras ... 1.73-1.88↓**
- **Tarra, 38.0-38.9, San Lorenzo ... 2.83↓**
- Lagunillas Heavy, flat, Cardon ... 2.10

†Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura ... $1.89-1.90
- Safaniya, 27.0-27.9, Ras Tanura ... 1.50
- Iran, 34.0-34.9, Bandar Mashur ... 1.86-2.04
- Iran, 34.0-34.9, Abadan ... 1.81
- Iraq, 35.0-35.9, Fao ... 1.80
- Kuwait, 31.0-31.9, Mina-al-Ahmadi ... 1.67
- Qatar, 41.0-41.9, Umm Said ... 2.05
- Neutral Zone, Burghan, 23.5-24.4, Mina Saud ... 1.51
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud ... 1.38

Middle East, Eastern Mediterranean
- Arabian, 34.0-34.9, Sidon ... $2.27
- Iraqi, 36.0-36.9, Tripoli, Banias ... 2.31

Far East, Cargoes, FOB Lutong, Sarawak
- Seria Light, flat ... $2.57

KEY TANKER RATES

(Last paid, per long ton, single voyage)

- **U.S. Gulf-New York, clean (USMC—42½%) $1.64↓**
- **U.S. Gulf-New York, dirty (USMC—27½%) $2.07↑**
- **NWI-USNH, dirty ... (USMC—70%) $0.83↓**
- NWI-UK/Cont., dirty ... (Scale—30%) 22/9*
- Persian Gulf-UK/Cont., dirty ... (Scale—70%) 20/10*
- Persian Gulf-USNH, dirty ... (USMC—72½%) $3.49

**Sterling.*

DEPT/Marketing

Optimism Brightens Gasoline Outlook

A much better year for gasoline demand is in store for oil companies this year, as consumers become more optimistic in their financial outlook.

Consumers are happier about their own pocketbooks and the general business outlook today than they were a year ago, according to a survey conducted by the Federal Reserve System. In every category of the survey, from incomes and proposed new-car purchases to appraisals of business conditions, consumers appear more optimistic now than they did last year.

These findings suggest a better year for gasoline demand, as well as for other consumer products.

Even in the first three months of 1959, consumers' optimism, and their resulting willingness to spend more, have lifted gasoline demand beyond expectations. Gasoline demand in the first quarter jumped 7.5% over 1958, compared to the 5.4% that had been anticipated.

These gains in the early part of the year suggest that total gasoline demand for the entire year will increase by more than the 4.5% that was expected at the start of the year. If the trend of the first three months continues throughout the rest of this year, gasoline demand in 1959 could rise 6.2% over 1958.

Of the consumers surveyed, 38% say they feel that they are better off today than they were a year ago. In contrast, the Federal Reserve (in its March bulletin) reports that last year only 32% (a ten-year low) could report any improvement in their financial situations.

In addition, the proportion of consumers who foresee good times for business in general has risen from 31% last year to 55%, suggesting that consumers are more confident about the economic outlook and, thus, will be more apt to indulge themselves in increased expenditures.

This general optimism has convinced 42 out of every 100 consumers in the Federal Reserve survey that they'll be earning even more money next year than they're already receiving. Last year only 37% were looking forward to increased incomes, while 11% actually anticipated declines in their incomes. This year only 7% still foresee thinner pay envelopes.

A parallel study of consumer purchasing patterns by the Dept. of Commerce indicates that oil and gasoline are getting a bigger share of the consumer's dollar.

After a two-year stagnation at 3.6%, oil and gasoline inched upward last year to 3.7% of total consumer expenditures. This advance was achieved without the aid of increased prices, since percentages were calculated in "real" terms.

Last year's rise in the proportion spent on oil and gasoline picks up a long-term trend that began after World War II. At that time, consumers were spending only 2.4¢ out of every dollar on oil and gasoline.

It is this trend, along with the expectation of higher incomes for consumers, that should help to push upward the sales of petroleum products at the retail level this year.

Although consumer expenditures on gasoline and oil do not respond quickly to short-term fluctuations in purchasing power (which is why they continued to rise despite last year's recession), consumer purchases of petroleum products over the long term appear to rise 0.6% for every 1.0% increase in purchasing power.

Industrial production is also expected to pick up steam this year—which will increase the demand for lubricating oils and greases.

Thomas W. Phelps, economics manager for Socony Mobil Oil Co., foresees an increase of 10.3% this year in the demand by U.S. industry for these oil products. Phelps bases this prediction on the close relationship between the demand for industrial lubricants and the Federal Reserve Board's index of industrial production, which is expected to increase by 10% this year.

What FRB Survey of Consumers Found

QUESTION	% YES 1959	% YES 1958
Are you better off than a year ago?	38%	32%
Are you making more money than a year ago?	40%	36%
Will you earn more money next year?	42%	37%
Do you expect good times in business?	55%	31%
Do you plan to purchase a new car?	7.6%	6.9%

Old Bill Becomes New Threat

The independent pricing policies of the petroleum industry would be dealt another strong governmental blow by the bitterly contested legislation now being debated at the hearings of the Senate antitrust (Kefauver) subcommittee.

This is the O'Mahoney bill, the so-called "pre-price notification" legislation, which would require major companies, including most oil firms, to submit any proposed price increases to the government for public review before putting them into effect.

The O'Mahoney bill, which faces a stiff, uphill fight in Congress, has been brought to the surface by Washington's jittery concern over the "dangers of inflation." To counter the threat of higher prices, legislators are casting about for ways to combat inflation by governmental restrictions.

The ten-year-old O'Mahoney bill is not given much hope of enactment in this session of Congress. But Kefauver and O'Mahoney are holding it up as a club over the head of business: Resumption of another upward price spiral, particularly if one follows the steel wage negotiations that are scheduled to start in two weeks, would put strong pressures behind the bill.

Thus, it will not be possible to determine the final congressional reaction to the O'Mahoney bill until the results of the steel negotiations are known.

Under the terms of the O'Mahoney bill, all major oil companies would be forced to submit any proposed price increase to the Federal Trade Commission 30 days before putting them into effect.

FTC would then be required to hold public hearings on the increase. It could compel the attendance of

witnesses and the submission of documentary evidence; failure to comply could be punished by fines and imprisonment.

FTC would not have the power to forbid the increase. The idea is that forcing companies to come before a government body and justify their prices in the glare of full publicity would tend to temper their desires for price increases.

Not all companies would be subject to the bill; it would cover only firms having in excess of $10-million in capital surplus and retained earnings, in a "line of commerce" in which 50% of the total U.S. sales are controlled by eight firms or less.

In petroleum products, 56% of the shipment value in 1957 was controlled by the eight largest oil companies, according to a Kefauver subcommittee study.

The O'Mahoney bill contains no provision for subjecting wage increases to public scrutiny. But Washington observers expect that, if any such pricing bill passes Congress, provisions for review of wage-hike proposals are sure to be included in it.

For this reason, labor unions, which at first supported the O'Mahoney measure, have now become more wary of it.

Sen. Joseph Clark (D., Pa.) and Rep. Henry Reuss (D., Wis.) have introduced a similar measure, which would make wages as well as prices subject to government review. This review would be held, however, by the President's Council of Economic Advisers, rather than FTC. The council itself is flatly opposed to this.

The Clark-Reuss Bill has already been cleared by a House government operations subcommittee, and is now awaiting action by the full committee.

Even though the National Petroleum Association has warned against the bill, no petroleum witnesses are scheduled to testify at the Senate hearings.

In a recent membership newsletter, NPA counsel Donald C. O'Hara wrote that the legislation "would be very dangerous to the smaller, non-integrated companies." He observed that "if the opponents of a price increase were able to generate sufficient political pressure to force the larger integrated companies to absorb an increase in the cost in one branch of their business, the independent companies in that branch would soon be unable to compete."

What's New / IN MARKETING

Shell Oil Co. of Canada is following the trend toward customer-oriented marketing: The company is splitting its entire marketing effort (from front office and divisions to local districts) into two branches—reseller sales and consumer sales.

The reseller branch will focus attention on jobbers, distributors, and dealers, while the consumer branch will concentrate on final users of oil products.

•

Gold, red, and white are the best colors for motor oil labels, Sinclair Refining Co. has found. After extensive research, the company discovered that these colors have the best effect on consumers, apparently connoting high quality to them. Sinclair will use the colors on its redesigned labels.

•

Demand for jet fuel, LP-gas, and asphalt is expected to jump sharply during the next 12 years, according to Arnold M. Leas, director of technical service for Ashland Oil & Refining Co. Domestic demand for jet fuel will expand three times faster than the domestic demand for gasoline, he says.

Leas warns that, "in order to have production and refining facilities adequate to meet the demands of any national emergency, it is mandatory that refineries make continued large expenditures for new facilities during peacetime."

•

Otis Ellis, general counsel of the National Oil Jobbers Council, will take the commercial accounts issue before the Federal Trade Commission or a congressional committee soon.

"Holding [the issue] up to the light of day may provoke the industry into doing something about it," Ellis says. Ellis, and many other jobbers, object to the practice of major oil companies of selling directly to large commercial consumers.

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DEPT/Personals

GEORGE A. GUMBS, JR., has been elected vice-president of Esso Tankers, Inc., New York, marine affiliate of Standard Oil Co. (N. J.). He is presently manager of Esso Tankers' traffic department. Gumbs joined Jersey in 1917, and became manager of its marine traffic activities in 1945. He was named a director of Esso Shipping Co. in 1951, and vice-president in 1958. He assumed his present position with Esso Tankers last year, when Esso Shipping became a part of Esso Standard Oil Co.

G. A. Gumbs, Jr.

C. A. Setterstrom

CARL A. SETTERSTROM has been appointed assistant to the president and director of the commercial development division of AviSun Corp., jointly owned affiliate of Sun Oil Co. and American Viscose Corp. He has been assistant director of Sun's research and development division since he joined the company in 1958. Before that, he was special projects manager for Chas. Pfizer & Co. **Dr. Edward T. Severs** has been named products manager, polymers, in AviSun's commercial development division; and **Earl M. Honeycutt** manager of manufacturing, polymers. Severs has been staff assistant to the manager of product development in Sun's research and development division, and Honeycutt has been manager of process development in Sun's research and development division. **Dr. A. Ross Adams, Neil A. Hansen,** and **James C. Warren** have been named product engineers, polymers, in the commercial development division. Adams joined Sun earlier this year as a research chemist. Hansen and Warren have been chemical engineers in the commercial development group in Sun's research and development division.

JAMES T. BUTTERFIELD has been elected a director of Sun Pipe Line Co., Philadelphia, and **Louis M. Miller** is the new assistant secretary. Butterfield is general superintendent of the crude lines department at Beaumont, Tex. Miller, who is also Sun Pipe Line treasurer, is located at Philadelphia headquarters.

RICHARD B. SANDERS has been named assistant manager of the natural gas department of Western Natural Gas Co., Houston.

S. W. STONE transfers from Shreveport, La., to Billings, Mont., as Carter Oil Co.'s division geologist. He has been division geologist in Shreveport since 1958. He replaces **L. T. Hart,** who assumes new responsibilities in connection with special stratigraphic studies being conducted in the Billings office. **J. C. McCulloch,** formerly division geologist at Denver, moves to Tulsa as assistant to Carter's chief geologist. **J. D. Langston,** Rawlins, Wyo., replaces McCulloch in Denver. **J. B. Coffman,** district geologist at Wichita, Kan., replaces Langston as district geologist at Rawlins.

CHARLES R. WILLIAMSON has been appointed superintendent of Northern Pipe Line Co. and New York Transit Co., subsidiaries of Buckeye Pipe Line Co., with offices in Olean, N. Y. Williamson was formerly assistant superintendent of gathering lines for Buckeye, at Lima, Ohio. He is also a director of New York Transit.

JOHN H. JOHNSEN, formerly assistant refinery manager at Sugar Creek, Mo., for Standard Oil Co. (Ind.), becomes manager of the company's Neodesha (Kan.) refinery. He succeeds **Harry G. Schnetzler,** who is retiring. Johnsen has been assistant manager at Sugar Creek since 1956. Before that he was assistant superintendent of the mechanical division at the Whiting (Ind.) refinery.

C. F. NIESSEN has been promoted to the newly created position of merchandising manager of D-X Sunray Oil Co., Tulsa. He was most recently advertising and sales promotion manager. At the same time, **L. S. McCaslin** was promoted to the new position of coordinator of advertising. He was previously assistant advertising and sales promotion manager. **R. B. Middleton** has been named to the newly created position of advertising supervisor, under McCaslin. Middleton is presently in charge of farm, outdoor, cooperative, and point-of-sale advertising and media distribution. **L. F. Sperry,** formerly assistant sales promotion manager, has been promoted to coordinator of sales promotion, a new position. **W. J. Wixson,** who has been managing TBA operations, will continue in this capacity as coordinator of TBA sales. **R. B. Havenstrite** will be TBA supervisor under Wixson. **A. L. Obert,** who has managed the company's sales training program, will be coordinator of sales training.

C. F. Niessen

G. A. Wilson

G. A. WILSON has been promoted to the newly created position of coordinator of natural gas operations for Continental Oil Co., with headquarters in Houston. He was formerly superintendent of natural gasoline and gas operations for Conoco's Rocky Mountain region, with offices in Denver. At the same time, **F. T. Elliott** was promoted to superintendent of Conoco's North Texas-Panhandle production division. He was formerly assistant superintendent of that division; and continues to make his headquarters in Wichita Falls, Tex. He succeeds **G. F. Beekman,** who has retired.

MACK G. TRUSDEL has been promoted to district superintendent of the Harvey (La.) district of the New Orleans division in The Texas Co.'s domestic producing department. **A.**

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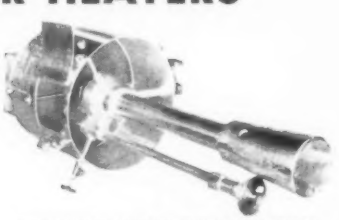

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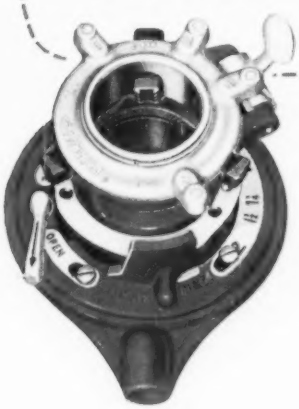

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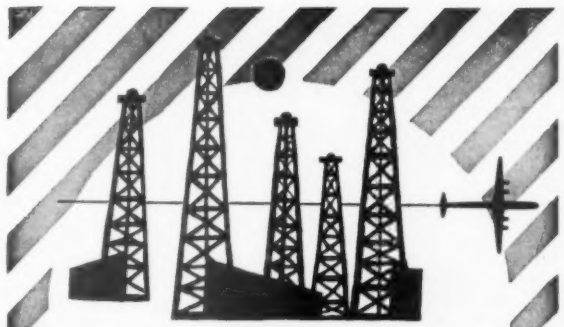

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THE WORLD OVER
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ROYAL DUTCH AIRLINES

M. Shook transfers from Houston to New Orleans to succeed Trusdel as division petroleum engineer. **R. C. Shields** succeeds Shook as petroleum engineer for the Houston division. He was most recently petroleum engineer on the staff of the general manager of the domestic producing department, in Houston. **L. A. Kuebler** has been promoted to assistant division geologist at Houston; he was formerly geologist for the Houston district. The former Houston district area has been divided into two districts—east and west of Houston. **Ralph A. Davis** has been named district geologist east of Houston and **Morris W. Wylie** west of Houston. **Claud M. Watts** succeeds Davis as development geologist on the division geological staff.

RICHARD L. PORTER moves to Anchorage, Alaska, as district land manager for Sinclair Oil & Gas Co.'s exploration department. He was formerly district land manager for Sinclair in New Orleans. **Ross Roger Gahring** and **Fred B. Jones, Jr.**, formerly senior geologists at Sinclair's Ardmore (Okla.) district office, also move to the Anchorage land office.

W. KEITH DRURY has become Shell Oil Co.'s district manager at San Jose, Calif. Drury, with Shell since 1946, became district sales supervisor in the Cleveland division in 1953, and in 1956 moved to Sacramento, Calif., as Shell's real estate manager. Drury succeeds **Alfred E. Phinney**, who is retiring.

W. C. GOODSON has been promoted to technical assistant to **J. R. Fraser**, vice-president and manager of Republic Natural Gas Co.'s gas department, in Dallas. He was formerly Republic's senior reservoir engineer.

WILLIAM J. WITHAM has been appointed manager of industrial sales for Sohio Chemical Co., Lima, Ohio, subsidiary of Standard Oil Co. (Ohio). He joined Sohio in 1946, and has held various engineering and production assignments. He was most recently superintendent of blending, shipping, and dry ice. His appointment coincides with the start of construction of an acrylonitrile and acetonitrile plant at Lima.

W. J. Witham

L. K. MacFarland

LELAND K. MacFARLAND, secretary and treasurer of Kingwood Oil Co., Oklahoma City, has been elected a national director of the Controllers Institute of America. He has been active in the controllers' group since 1953, and has been a president of its Oklahoma Control.

DR. EDWARD G. BAKER has been named a research associate in the chemicals research division of Esso Research & Engineering Co., Linden, N. J. Esso Research gives the title of research associate to scientists "with outstanding technical ability." Baker joined Esso Research eight years ago, after receiving a doctorate in physical chemistry from Brown University.

VICTOR H. PETERSON has joined Standard-Vacuum Oil Co. as assistant manager of the public relations department, with offices in White Plains, N. Y. He was formerly assistant manager of Socony Mobil Oil Co.'s public relations department, in New York City.

E. H. WILDER, Sun Oil Co., is the new chairman of the Petroleum Industry Electrical Assn., and **D. R. Wofford**, Texas Gas Transmission Co., succeeds him as president of the association. Wofford was formerly a vice-president. **C. E. Upson**, Texas Illinois Natural Gas Pipe Line Co., is the association's new vice-president.

WENDELL S. MOORE, Columbian Carbon Co., Charleston, W. Va., is eastern district chairman of the American Petroleum Institute's Division of Production. He succeeds **Robert S. Stewart**, Huntley & Huntley, Pittsburgh, who is now chairman of the district advisory committee. **J. Robert Hornor**, Delaware Gas Co., Clarksburg, W. Va., is the district's new secretary-treasurer.

EDMUND C. BABSON is the new chairman of the board of governors of the Canadian Petroleum Assn. He is manager of Union Oil Co. of California's Canadian division, at Calgary.

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Atlanta 3 — Douglas C. Billian
1301 Rhodes-Haverty Bldg.
Jackson 3-6951

Boston 6 — Donald R. Thompson
350 Park Square Bldg.
Hubbard 2-7160

Chicago 11 — Edward A. Callahan Jr.
H. Sherman Davis
520 North Michigan Avenue
Mohawk 4-5800

Cleveland 15 — J. E. MacArthur
1164 Illuminating Bldg.
55 Public Square
Superior 1-7000

Denver 2 — J. W. Patten
Mile High Center, 1740 Broadway
Alpine 5-2981

Houston 25 — D. O. Hanson
724 Prudential Bldg.
Jackson 6-1281

Los Angeles 17 — Peter S. Carberry
1125 W. Sixth St.
Huntley 2-5450

New York 36 — Donald R. Thompson
500 Fifth Ave.
Oxford 5-5959

Philadelphia 3 — W. A. Potter
6 Penn Center Plaza
Locust 8-4330

San Francisco 4 — William C. Woolston
68 Post Street
Douglas 2-4600

Tulsa 3 — J. A. Hartley
909 Enterprise Bldg.
522 South Boston
Gibson 7-5594

England, London E. C. 4 — E. E. Schirmer
McGraw-Hill Co., Ltd.
95 Farrington St.

DEPT/Service & Equipment Companies

HOWARD B. BOOK has been promoted from vice-president of sales to senior vice-president of sales for Reed Roller Bit Co., Houston. **Dow Warren,** formerly executive assistant, has been promoted to vice-president.

R. J. Evans, Jr.

H. B. Book

R. J. EVANS, JR., has been named vice-president and domestic sales manager of Byron Jackson Tools, Inc., Los Angeles. Evans was formerly BJ's southern regional sales manager. He will headquarter in the Mid-Continent area. **J. T. Carle** has been named manager of BJ's new oil well pump section. Headquarters for the new section have been established at BJ's plant in Tulsa. The section will be responsible for two lines of BJ's sub-surface oil well pumps.

ERWIN A. MORLAN has been appointed assistant director of research for Hughes Tool Co., Houston. He has been in the Hughes engineering and research organization since 1938. He is co-inventor of the Hughes "chert" bit, and sole inventor of an "insert" bit. He was also responsible for the design and construction of the field size drilling rig in the Hughes engineering and research laboratory.

CARDWELL MFG. CO., Wichita, Kan., has concluded a nonexclusive licensing agreement with Mannesmann-Tranzl. A. G., an Austrian oil equipment firm.

T. M. Lumly, Jr.

J. Pearce

JOHN PEARCE is chairman, and **THOMAS M. LUMLY, JR.,** secretary-treasurer, of the Nomads National Board of Regents. Both men are regents of the Tulsa chapter of Nomads. Pearce is sales representative of Superior Iron Works & Supply Co., and Lumly is president and founder of The Refinery Engineering Co.

MICHAEL P. GROOM has been named branch manager of the new El Paso (Tex.) sales office of Rockwell Mfg. Co.'s meter and valve division. The office is being transferred to El Paso from Midland. **John R. Applegate** succeeds Groom as branch manager of the division's Detroit sales office. Applegate has been the division's assistant product manager of lubricant sales since 1957.

JIM RAPIER has joined Cherokee Steel, Inc., Tulsa, as sales engineer. He was formerly with Gardner-Denver Co., in Tulsa. In his new position, he will represent Cherokee Steel's gas compressor and air drilling divisions in Oklahoma, Kansas, and the Texas Panhandle.

F. M. LEHNER has been named West Coast area manager for Seismograph Service Corp., SSC's Birdwell Logging Division, and Seiscor Mfg. Co. He has been West Coast representative for SSC since 1956.

MACAULEY CARTER is sales manager of the petroleum refinery division of Arthur G. McKee & Co., Cleveland. Prior to joining McKee in 1946 as sales representative, he was treasurer of Universal Oil Products Co.

M. Carter

M. W. Burrell

MAX W. BURRELL is president of Alpha Corp., Dallas, newly formed subsidiary of Collins Radio Co., manufacturer of electronic equipment and systems. Burrell is also vice-president of the parent company. Other Alpha officers are: **John D. Nyquist,** vice-president and general manager; **D. C. Arnold,** marketing vice-president; **R. J. Flynn,** finance vice-president; and **R. M. Ringoen,** engineering vice-president. All Alpha officers are executives in the parent company.

DR. ADRIEN LeDUC has been appointed research associate for M. W. Kellogg Co., New York City and Jersey City, N. J. He was formerly research group leader with the electro chemicals division of Diamond Alkali Co. He will be engaged in exploratory research with Kellogg.

D. S. BALL, Motorola Communications & Electronics, Inc., has been elected chairman of the Petroleum Electric Supply Assn. Other new officers of PESA are: **Thiel W. Sharpe,** Collins Radio Co., president; **John D. Trilsch,** John D. Trilsch, Inc., vice-president; and **P. S. King,** Westinghouse Electric Corp., secretary-treasurer.

WILLIAM M. CONNOR, assistant to the vice-president of Rockwell Mfg. Co.'s meter and valve division, has become general manager of the company's Statesboro (Ga.) plant. Before he became assistant to the vice-president, Connor was general manager of the DuBois (Pa.) plant. At the same time, **Samuel W. Brown** was named assistant general manager at Rockwell's Uniontown (Pa.) plant. He was formerly general manager at Statesboro.

W. A. (Bill) DAVIDSON moves up from assistant sales manager to sales manager of Herb J. Hawthorne, Inc., Houston manufacturer of drilling equipment. He joined the company in 1958, as sales representative.

W. A. Davidson

G. O. Ellis, Jr.

GEORGE O. ELLIS, JR., has been promoted to division sales manager for Schlumberger Well Surveying Corp. in Billings, Mont. Ellis, with Schlumberger since 1946, was most recently district manager in Cody, Wyo.

SEARCHLIGHT SECTION
(Classified Advertising)
EMPLOYMENT • BUSINESS EQUIPMENT — USED OR RESALE
OPPORTUNITIES

FOR SALE

For Sale—Portable Derrick-1 Oilwell Portable Derrick, Model 133 B with 16' x 46' 6½" x 26' 5½ width Sub-Structure with steel plate on bottom. Cap.500,000#. Height 133', assembled with taper dowels, derrick legs pivot into place from ground level. Excellent condition. Located in Corpus Christi, Texas, area. Price $15,000.00. Wm. H. Martin, 317 Santa Monica, Corpus Christi, Texas. Telephone Ulysses 2-6513.

Foamite—American LaFrance, single powder type, original sealed 50 lb. cans, our low price-$2.25/can, delivered. Foamite Generators, portable w/hoppers, unused $19.50 each. Gilbreth Co., 1211 Chestnut St., Phila. 7, Pa.

WANTED

Anything within reason that is wanted in the field served by Petroleum Week can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business paper they read.

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The Import Scene Switches to Canada

CANADA HAS GROWN FAST as an oil-producing nation—in fact, possibly too fast for its own good. As a major producing nation it is approaching its 12th anniversary—even though it can trace its productive ability back for a century.

The trouble is, it became a major consuming nation—at least on a per capita basis—a long time before the major discoveries in Alberta just after World War II. And, contrary to the situation in the U.S., Canada long ago found imported oil a necessity to fill the requirements of a modern industrial nation.

But, somewhat parallel to the situation in the U.S., Western Canadian producers are now fighting for a foothold in the country's domestic markets. Eastern Canadian refineries can import foreign crude more cheaply than they can buy domestic crude, which must cross the nation by pipeline to reach the big markets surrounding Montreal and Toronto.

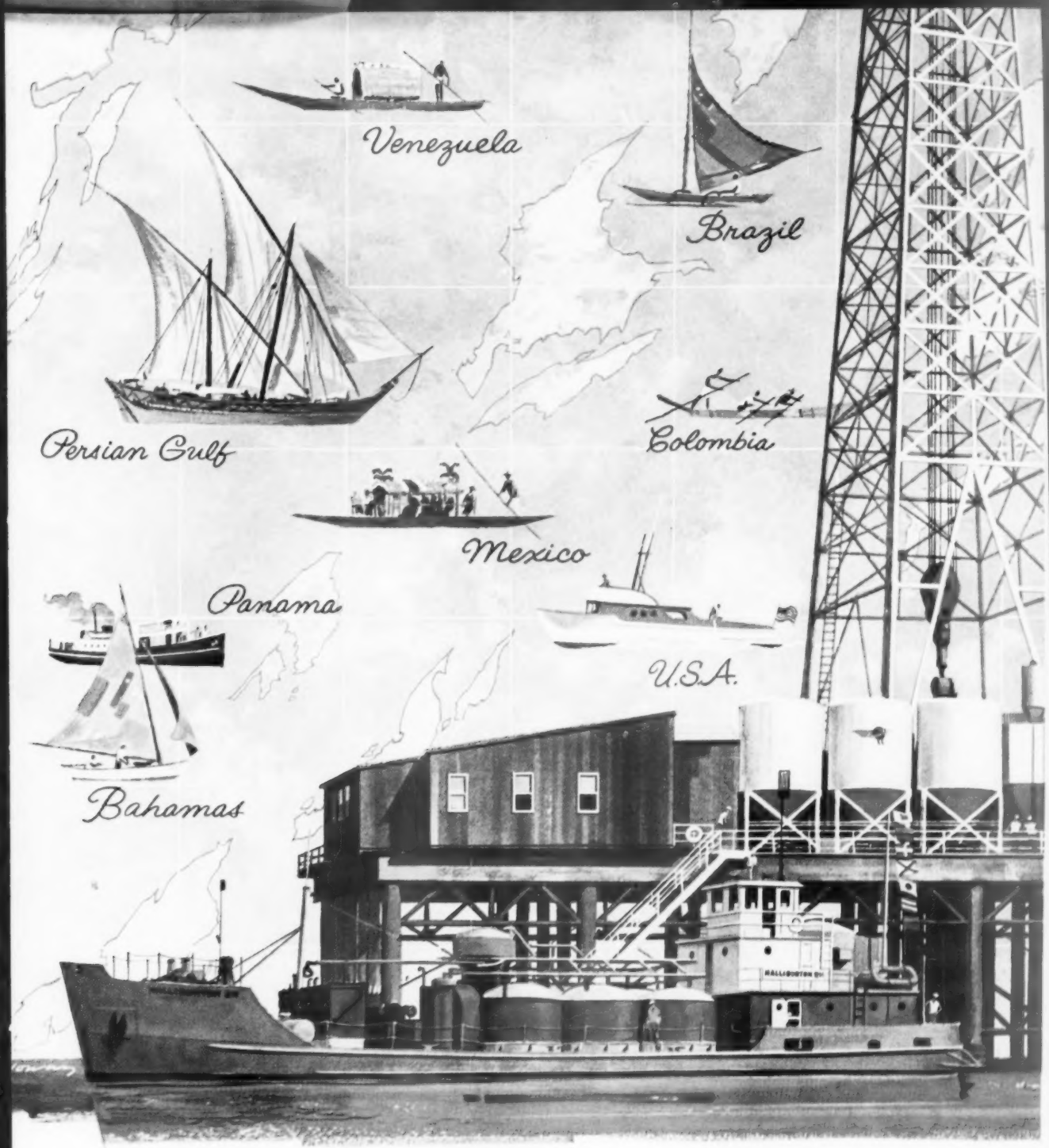
IT IS A DIFFICULT SITUATION to solve in Canada—just as a similar "solution" was difficult to find in the U.S. In this country, the result was the entry of the federal government into the partial regulation of the industry through mandatory imports control.

Now the Canadian Petroleum Assn. is asking the Canadian Government to take steps to "insure the maximum practical use of Canadian crude in Canadian markets." The association is taking steps that should ring familiar to the U.S. industry:

"The government [should] immediately sponsor a meeting of leaders of Canada's petroleum industry . . . [to] seek a voluntary arrangement satisfactory to the government . . . The association earnestly hopes that industry statesmanship will prevail at such a meeting, so that voluntary action under government sponsorship will be entirely effective."

Canadian producers undoubtedly will find that industry statesmanship and the hard-boiled economic facts of life are difficult—if not impossible—to resolve. Canadian crude, for example, which was once described as a "natural" for the West Coast Canadian markets as well as for the Puget Sound area of the U.S., now has been forced into a secondary role in those areas by oil from the Middle East and Far East.

INDUSTRY STATESMANSHIP IS CERTAINLY NEEDED in Canada at this young stage in the productive history of the major fields in the western provinces. Canadian reserves of liquid and gaseous hydrocarbons have increased in every postwar year. Given an economic climate in which to grow, they undoubtedly will continue to grow as a major reserve of petroleum for any emergency.

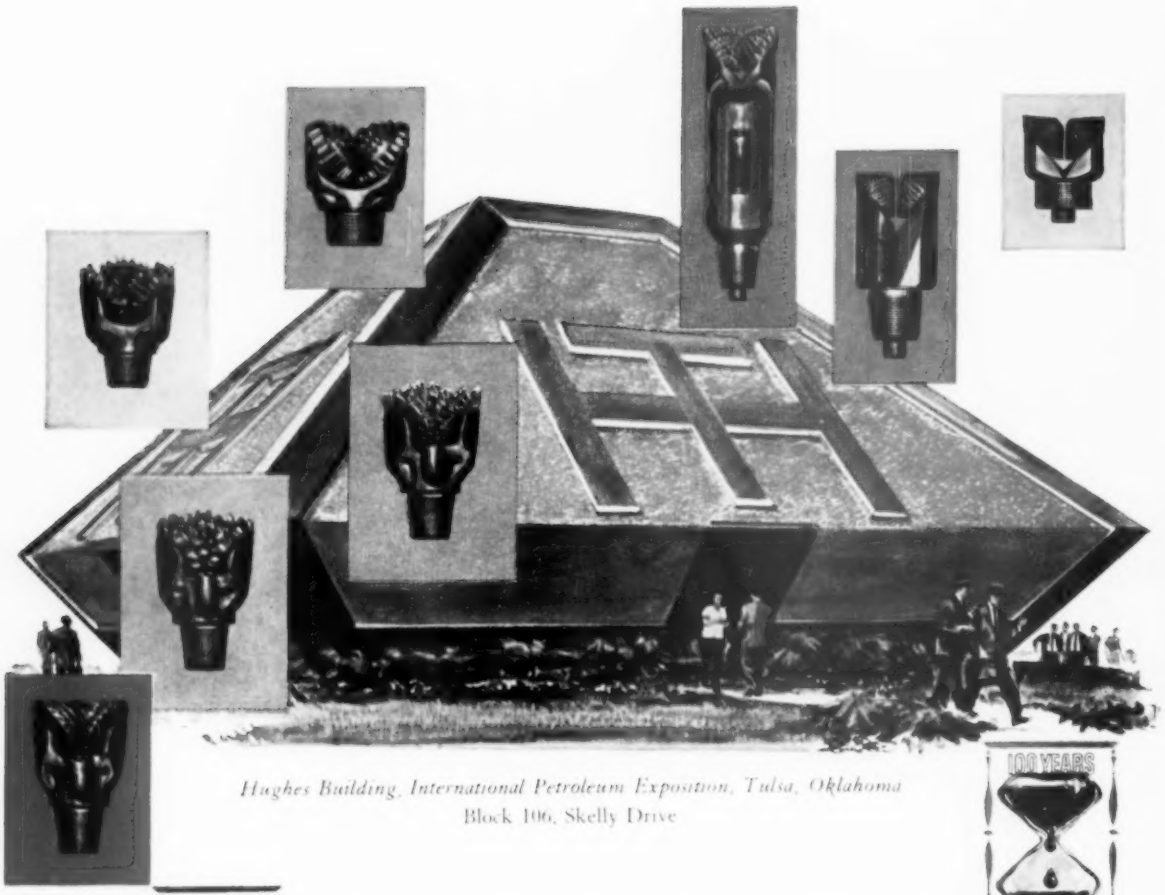


Charting the Course of Progress...

Underway . . . round the world . . . Halliburton sea-going men and equipment take the helm to chart the course of petroleum progress in the free-world's waterways. Halliburton's seaworthy "force for oil" is dedicated and always ready to provide maritime oil well services and materials in the many ports of call for the oil industry's off-shore requirements.

HALLIBURTON OIL WELL CEMENTING COMPANY

DUNCAN, OKLAHOMA



Hughes Building, International Petroleum Exposition, Tulsa, Oklahoma
Block 106, Skelly Drive

EVOLUTION OF THE ROCK BIT TO BE TOLD IN HUGHES EXHIBIT

Fifty years of rock bit history, from the industry's very first rock bit to the very latest, will be traced in models and pictures at the Hughes exhibit at the International Petroleum Exposition, Tulsa, May 14-23.

The exhibit will feature the Hughes 1909 bit, which introduced the basic cutting principle incorporated in all present day cone-type bits; the *first* reaming cone bit; the Simplex bit that introduced self-cleaning cones — a major advance in cutting structures; the Unit bit that opened the door to modern bit designing; and the first of the Tri-Cone bits that introduced the era of "tailor-made" bits, designed [illegible] specific formations. Also shown will be *today's bits* that reflect a half century of research and experience gained in making millions of bits that have drilled over two billion feet of hole in fields throughout the world.

On display, too, will be *the latest* developments in tool joints.

Hughes officials, engineers and sales personnel, familiar with drilling problems in all parts of the world, will be on hand to greet exhibit visitors. We shall look forward to seeing you in Tulsa.

HUGHES TOOL COMPANY

50TH ANNIVERSARY YEAR 1909 – 1959